2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR520 - CHALK BLUFFS

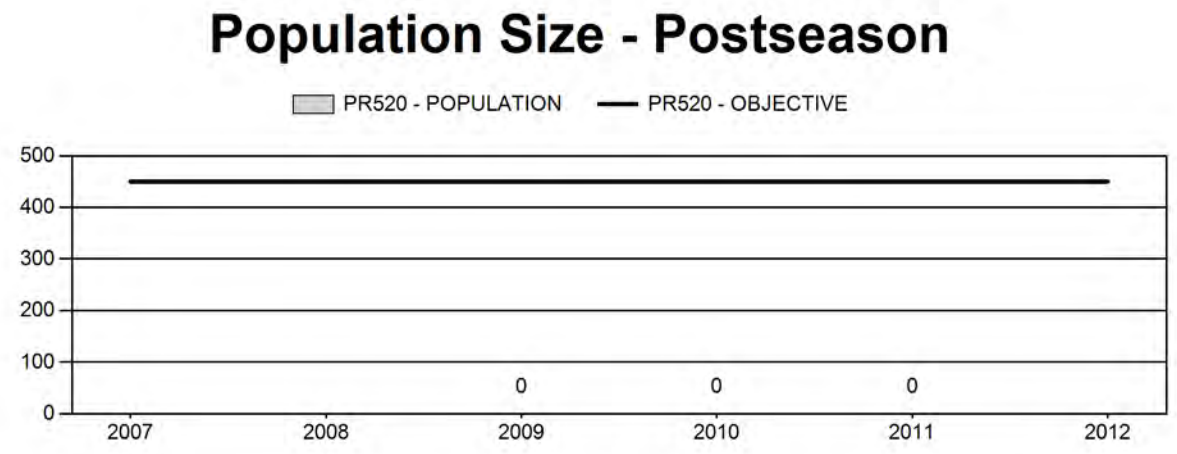
HUNT AREAS: 111
PREPARED BY: MARTIN HICKS

	2007 - 2011 Average	2012	2013 Proposed
Population:	0	N/A	N/A
Harvest:	217	149	100
Hunters:	275	251	150
Hunter Success:	79%	59%	67 %
Active Licenses:	309	282	170
Active License Percent:	70%	53%	59 %
Recreation Days:	1,226	1,138	700
Days Per Animal:	5.6	7.6	7
Males per 100 Females	26	37	
Juveniles per 100 Females	44	59	

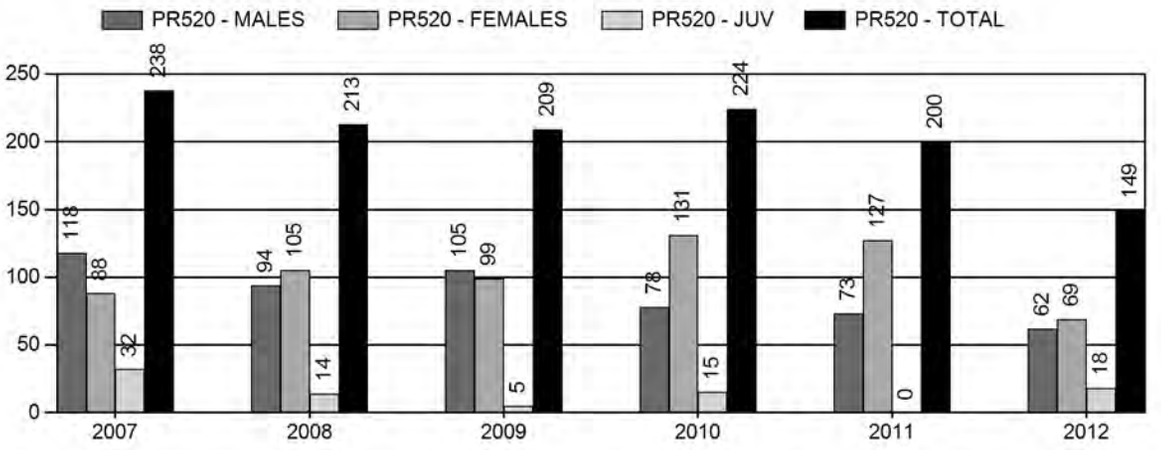
Population Objective:	450
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

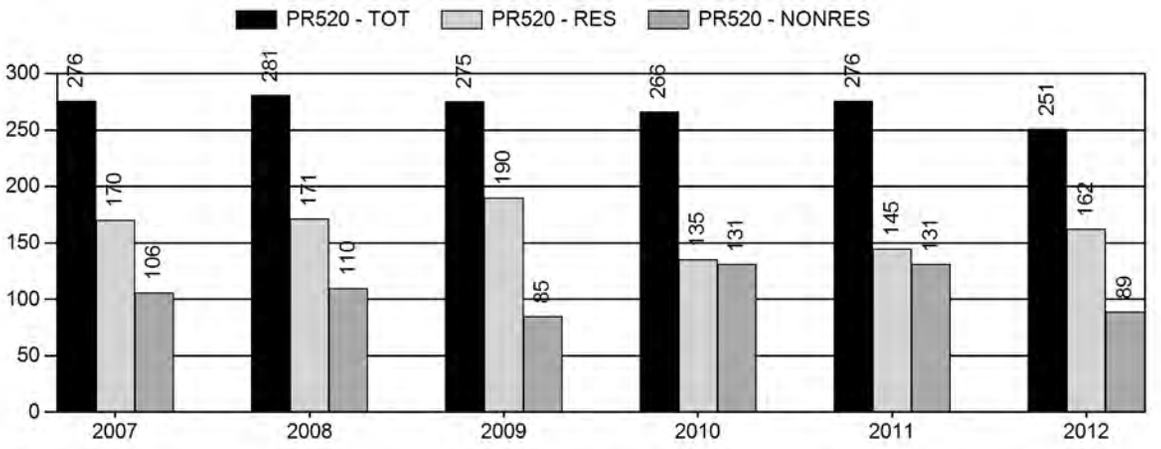
	JCR Year	Proposed
Females ≥ 1 year old:	na%	na%
Males ≥ 1 year old:	na%	na%
Juveniles (< 1 year old):	na%	na%
Total:	na%	na%
Proposed change in post-season population:	na%	na%



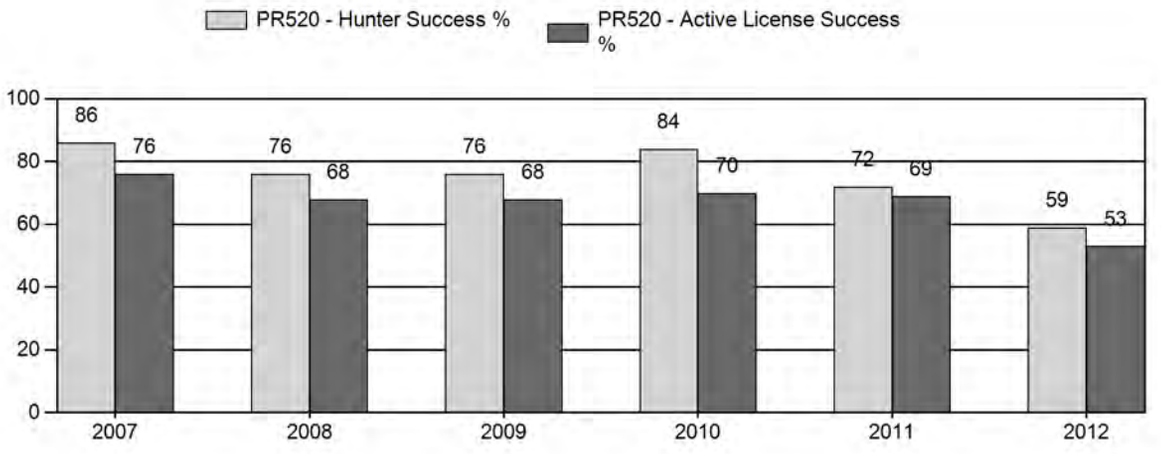
Harvest



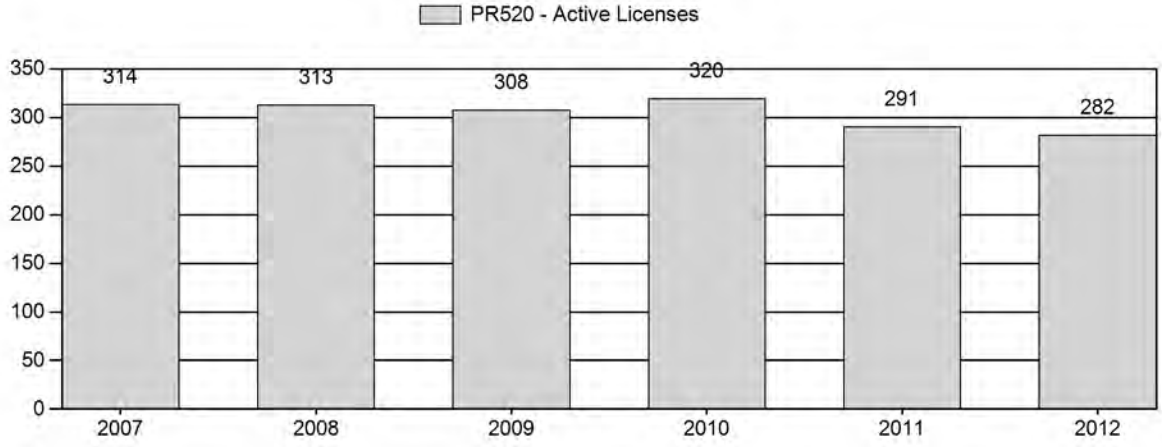
Number of Hunters



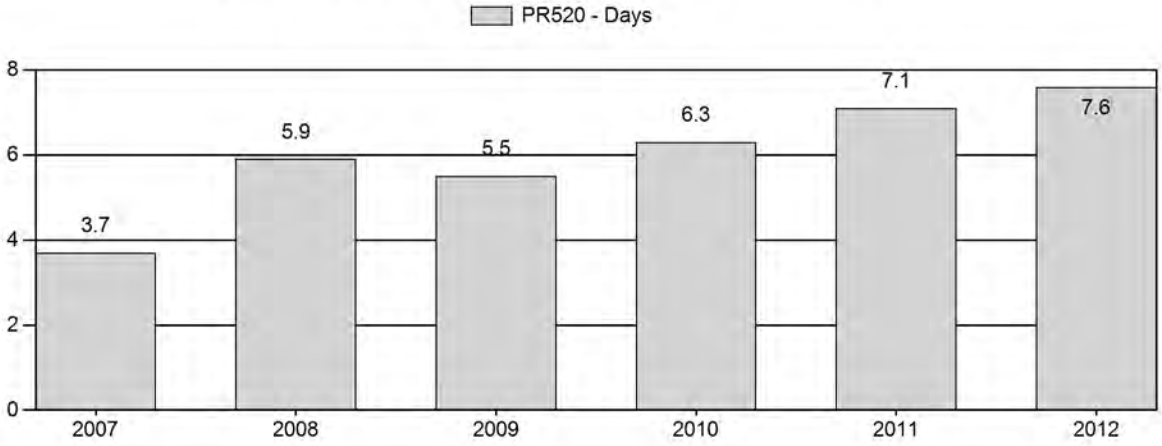
Harvest Success



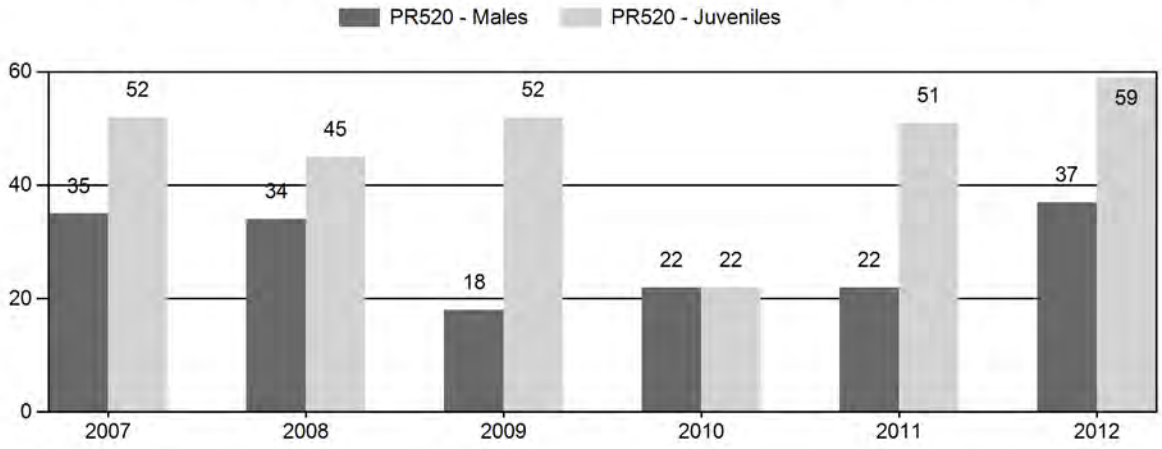
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR520 - CHALK BLUFFS

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	0	7	14	21	19%	60	54%	31	28%	112	0	12	23	35	± 0	52	± 0	38
2008	0	2	24	26	19%	77	56%	35	25%	138	304	3	31	34	± 0	45	± 0	34
2009	0	1	15	16	11%	89	59%	46	30%	151	348	1	17	18	± 0	52	± 0	44
2010	0	0	17	17	15%	78	70%	17	15%	112	289	0	22	22	± 0	22	± 0	18
2011	0	1	14	15	13%	67	58%	34	29%	116	370	1	21	22	± 0	51	± 0	41
2012	0	4	11	15	19%	41	51%	24	30%	80	0	10	27	37	± 0	59	± 0	43

2013 HUNTING SEASONS
CHALK BLUFFS PRONGHORN HERD (PR520)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
111	1	Sep. 21	Oct.14	100	Limited quota licenses; any antelope
	6	Sep. 21	Oct.14	100	Limited quota licenses; doe or fawn
		Nov. 15	Dec. 31		Unused Area 111 Type 1 and Type 6 licenses valid for doe or fawn
Archery		Aug. 15	Sep. 20		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
111	1	-50
	6	-100

Management Evaluation

Current Management Objective: 450
2012 Postseason Population Estimate: Unknown
2013 Postseason Population Estimate: Unknown

Herd Unit Issues

The management objective for the Chalk Bluffs Pronghorn Herd Unit is a post-season population objective of 450 pronghorn. The management strategy is a recreational management with a pre-season buck ratio range of 20-59 Bucks:100 Does. The objective and management strategy are currently in review and any changes that take place will start the beginning of the 2014 biological year. A proposal will be taken to the Commission in June that recommends a landowner and sportsmen satisfaction survey and eliminate the numeric objective of 450.

Chalk Bluffs Herd Unit consists of 90% private land, making management difficult. In addition urban sprawl continues to increase at an alarming rate. Traditional ranches have been sold along Crow Creek and converted to subdivisions. In addition oil and gas development has displaced pronghorn and reduced occupied habitat.

Weather

Weather during 2012 was extremely dry and warmer than normal. Southeast Wyoming received virtually zero precipitation from May-August. The winter of 2011-12 experienced cold and high snow accumulations periods, most likely resulting in some winter mortality and likely negatively impacting fawn recruitment. However, without adequate classification data it is hard to determine. The winter of 2012-13 has been very mild with little snow accumulation. A high winter mortality is expected if the area receives normal snow levels. Refer to the following website links for weather data: http://www.ncdc.noaa.gov/temp-and-precip/time-series/ and http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html.

Habitat

We have not established habitat transects in this herd unit, nor do we intend to. Pronghorn in this herd unit are dependent on agricultural fields when they are not in Colorado. Seasons are designed to reduce damage when densities increase past the comfort levels of landowners. Weather events will push pronghorn from Colorado into Wyoming during winter months, resulting in damage to wheat fields. Landowners have expressed their desire to maintain long seasons to address these situations. The reader is referred to the 2012 Strategic Habitat Plan Annual Report for further background information on habitat conditions within the Laramie Region (http://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/SHP12_AR_LARAMIEREGION0004110.pdf).

Field Data/Harvest Data

Due to our inability to collect data there is little confidence in classification data. A comparison to adjacent Hawk Springs Herd Unit where fawn ratios run around 40 fawns:100 does would prevent population growth if fawn ratios are similar. Consequently both Type 1 and Type 6 licenses have decreased in recent years, and at the same time hunter participation has also decreased lending credibility to loss of access and lower pronghorn numbers. Success has decreased and effort has increased for both the Type 1 and Type 6 licenses supporting personnel, landowner and sportsmen comments that there are fewer pronghorn. A late season license will continue to be available to address damage concerns when pronghorn move in from Colorado. The hunter satisfaction survey showed that 64% of the hunters were either satisfied or very satisfied, which was not expected given limited access and pronghorn.

Population

There is not a postseason population estimate for a variety of reasons: 1) Open population with Colorado and Nebraska, 2) Restricted access due to urban encroachment and industrial gas development, which prevents our ability to influence harvest, 3) Poor classification data, which is always well below the adequate sample size and 4) No reliable working model.

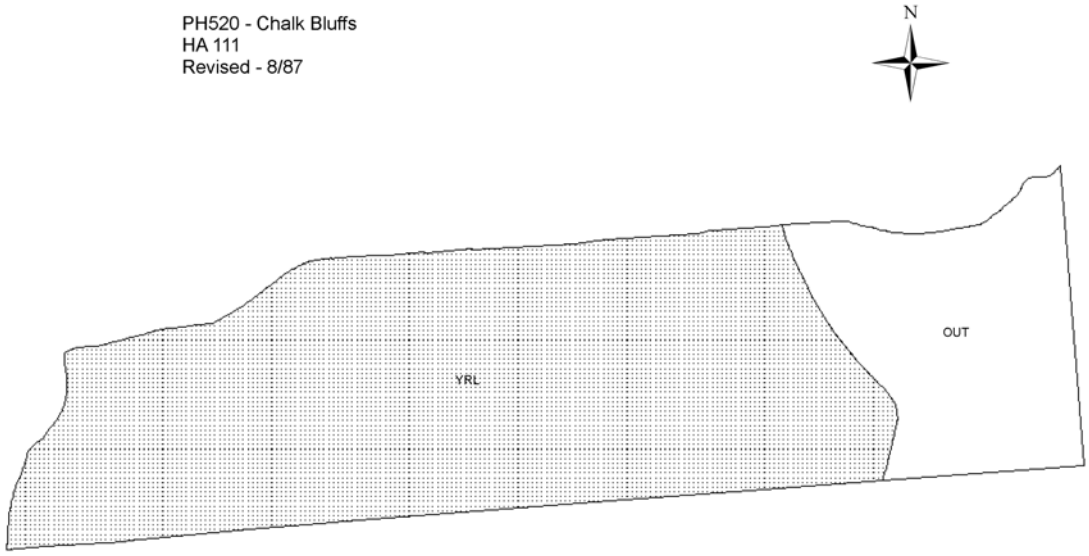
In order to better manage this open herd unit we will be coordinating with Colorado Division of Wildlife to obtain population estimates and develop comparable season structures for harvest numbers. We do not collect field data on this herd unit due to our inability to manage it, therefore there is no tooth data to analyze.

This season traditionally starts the third Saturday in September and runs for about three weeks. In an attempt to address the decreasing herd along with difficulties in obtaining a harvest the Type 1 licenses we recommended to decrease the Type 1 licenses by 50 and the Type 6 licenses by 100. Landowners are still in favor of the late season hunt from November 15 – December 31, with the addition of adding unused Type 1 licenses. Based on past seasons we predict a harvest of 50 bucks, 40 does and 10 fawns for a total of 100 pronghorn. Harvest data indicates that there are fewer pronghorn when looking at the increasing trend in success and the decreasing trend in effort for both Type 1 and Type 6 licenses.

Management Summary

In summary the management strategy is designed to reduce higher densities of pronghorn on dryland agriculture fields, while at the same time trying to maximize opportunity for Type 1 license holders. Access is primarily driven by damage situations. Recreational access for the most part is on state lands or private land enrolled into the department's PLPW program. Some recreational access is maintained on several ranches that have allowed the same hunters on their place year after year. However, given the recent increase in industrial and urban development those opportunities are decreasing. The 2013 will result in a reduction in harvest compared to the 2012 season as a result of fewer license holders going to the field with the reduction in both Type 1 and Type 6 licenses. We will still have a late doe/fawn season to reduce damage issues as pronghorn move into Wyoming from Colorado.

PH520 - Chalk Bluffs
HA 111
Revised - 8/87



2012 - JCR Evaluation Form

SPECIES: Pronghorn PERIOD: 6/1/2012 - 5/31/2013

HERD: PR521 - HAWK SPRINGS

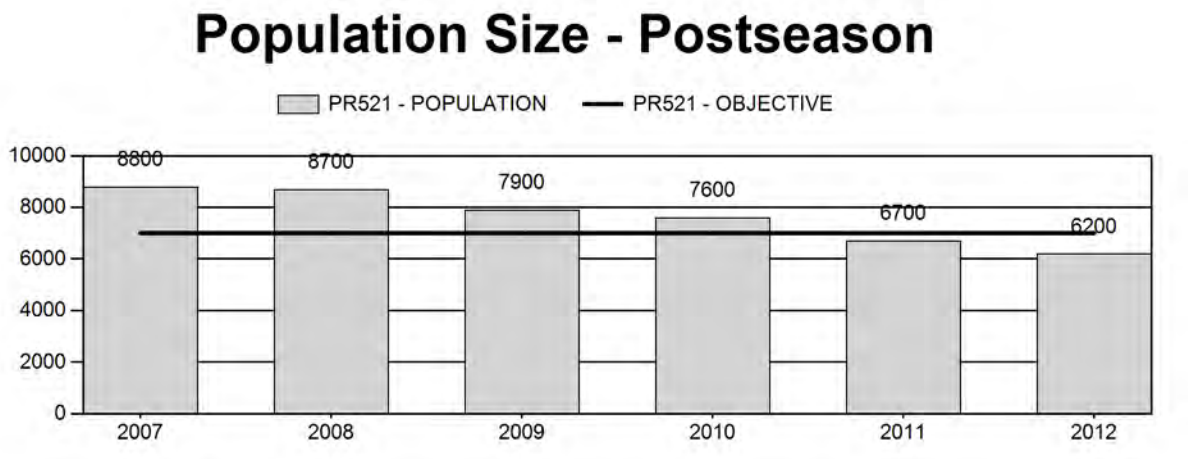
HUNT AREAS: 34-36 PREPARED BY: MARTIN HICKS

	2007 - 2011 Average	2012	2013 Proposed
Population:	7,940	6,200	5,500
Harvest:	1,053	1,085	1,035
Hunters:	1,180	1,220	1,155
Hunter Success:	89%	89%	90%
Active Licenses:	1,342	1,458	1,400
Active License Percent:	78%	74%	74%
Recreation Days:	4,387	5,035	4,600
Days Per Animal:	4.2	4.6	4.4
Males per 100 Females	43	44	
Juveniles per 100 Females	47	46	

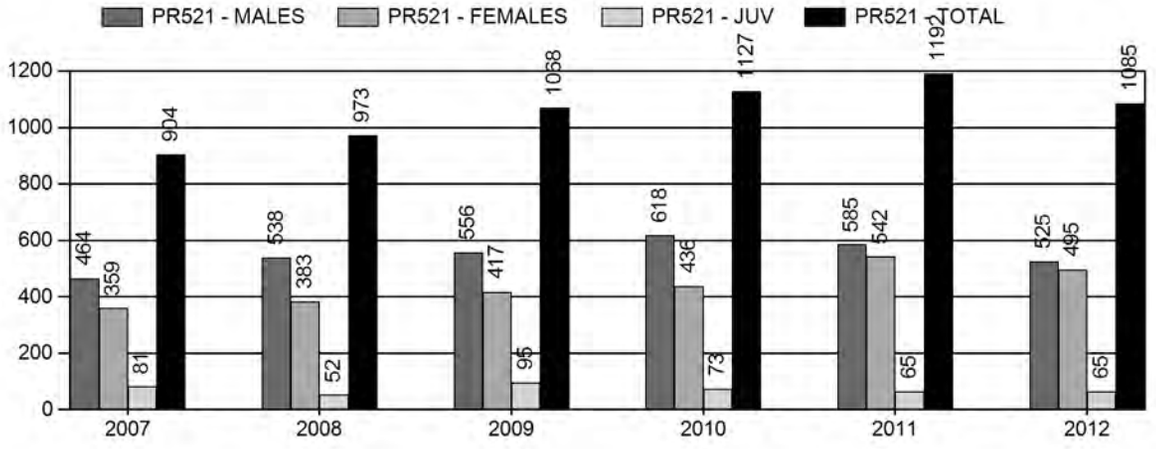
Population Objective:	7,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-11.4%
Number of years population has been + or - objective in recent trend:	3
Model Date:	02/27/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

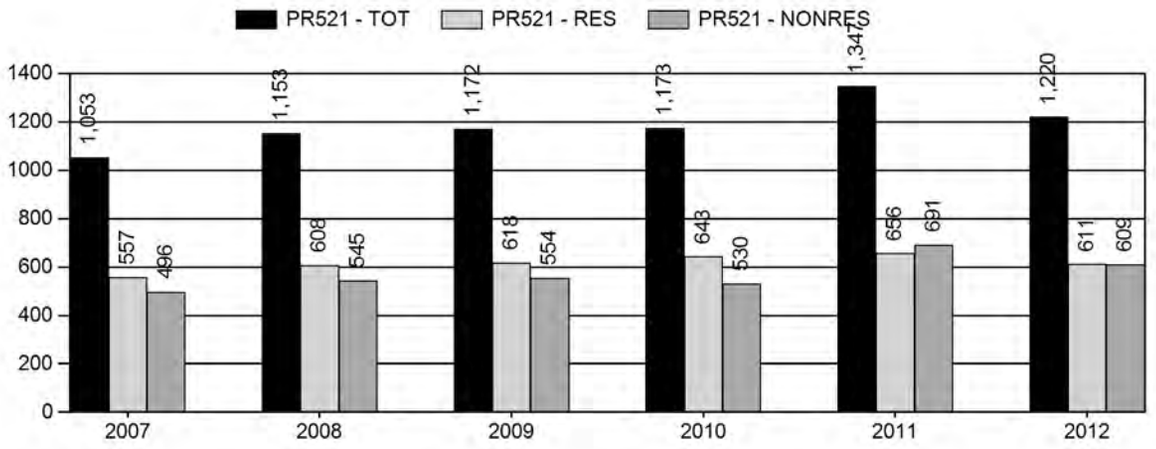
	JCR Year	Proposed
Females ≥ 1 year old:	13%	15%
Males ≥ 1 year old:	35%	40%
Juveniles (< 1 year old):	0%	0%
Total:	18%	19%
Proposed change in post-season population:	-8%	-12%



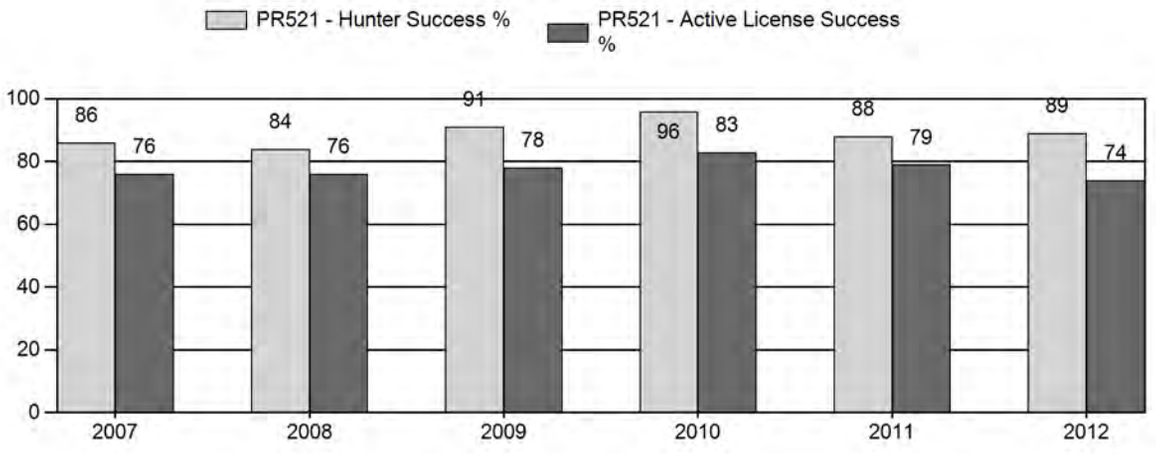
Harvest



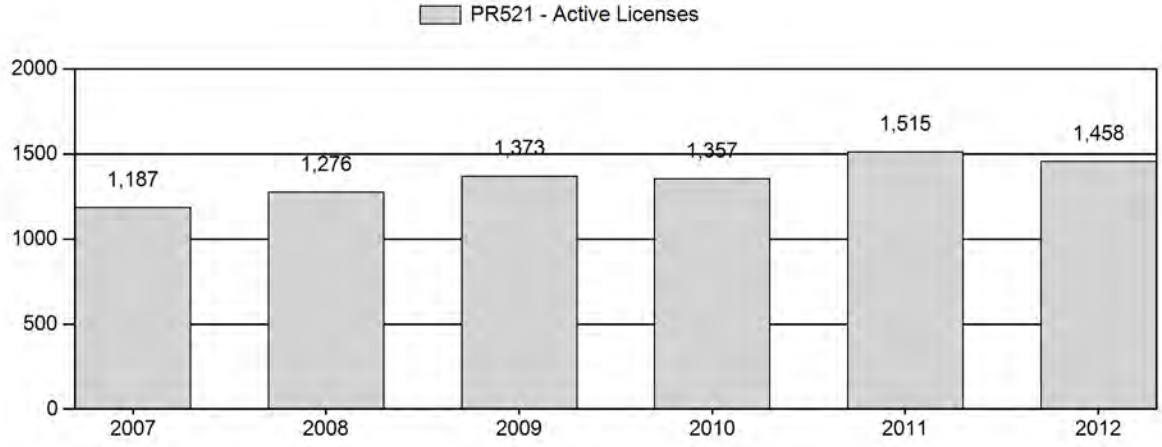
Number of Hunters



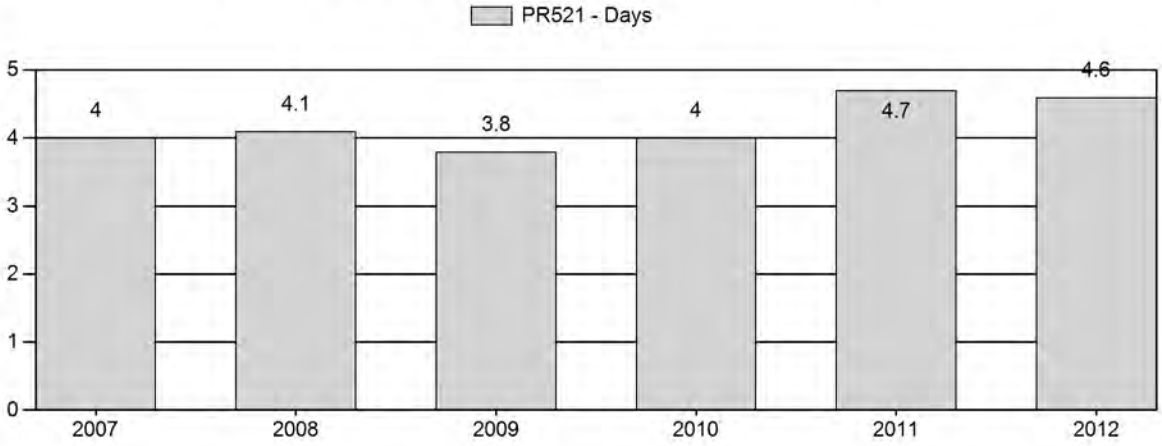
Harvest Success



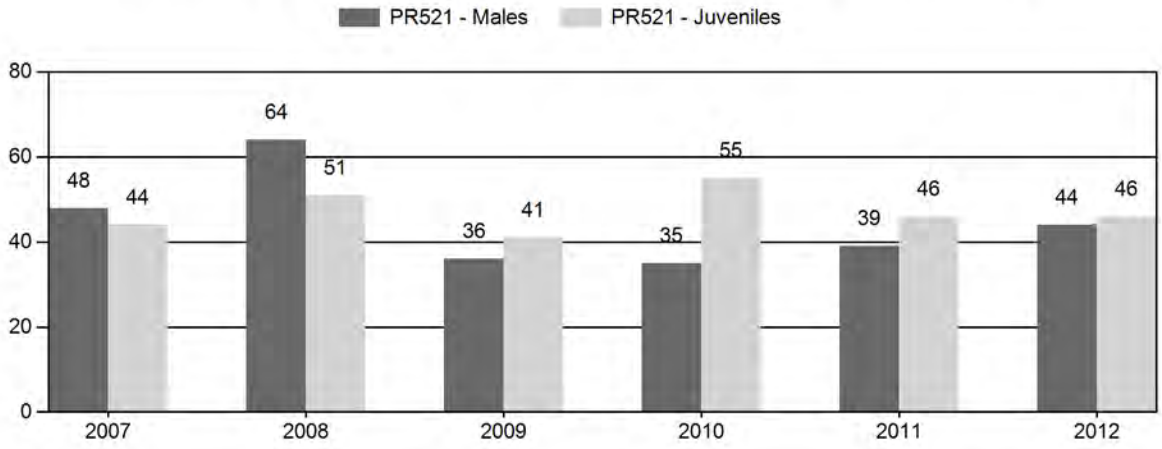
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR521 - HAWK SPRINGS

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	9,800	195	199	394	25%	824	52%	365	23%	1,583	1,315	24	24	48	± 4	44	± 4	30
2008	9,800	158	177	335	30%	524	47%	265	24%	1,124	1,418	30	34	64	± 7	51	± 6	31
2009	9,000	144	166	310	20%	872	57%	359	23%	1,541	1,010	17	19	36	± 4	41	± 4	30
2010	8,800	69	161	230	18%	658	53%	360	29%	1,248	1,183	10	24	35	± 4	55	± 5	41
2011	8,000	104	160	264	21%	669	54%	309	25%	1,242	1,378	16	24	39	± 4	46	± 5	33
2012	7,400	94	132	226	23%	517	53%	240	24%	983	1,297	18	26	44	± 5	46	± 6	32

2007 - 2012 Harvest Age Structure

for Pronghorn Herd PR521 - HAWK SPRINGS

	Males										Females										Herd
Year	Juv	1	% 1 *	2	3 ^	% 3 **	Total Aged ++	Not Aged +++	Unk	Total Chkd	Juv	1	% 1 *	2	3 ^	% 3 **	Total Aged ++	Not Aged +++	Unk	Total Chkd	Total
2007	0	0	0%	1	7	88%	8	0	1	9	0	1	100%	0	0	0%	1	0	0	1	10
2008	0	0	0%	11	3	21%	14	0	0	14	0	0	0%	3	1	25%	4	0	0	4	18
2009	0	0	0%	1	1	50%	2	4	0	6	0	0	0%	4	3	43%	7	1	2	10	16
2010	0	0	0%	0	3	100%	3	0	0	3	0	1	12%	2	3	50%	6	2	1	9	12
2011	1	3	18%	3	6	50%	13	5	0	18	0	1	25%	1	1	33%	3	1	1	5	23
2012	2	4	17%	4	7	47%	17	9	0	26	1	6	55%	0	1	14%	8	4	0	12	38

* Percent of aged animals (including unaged adults but excluding juveniles) 1 1/2 years old

^ Number of animals three years old and older. Animals aged older than three (excluding unaged adults) are lumped into this three plus category

** Percent of aged animals (not including juveniles or unaged adults) three years old or older

++ includes juveniles

+++ Unaged adults - unaged animals older than yearlings

2013 HUNTING SEASON
HAWK SPRINGS PRONGHORN HERD (PR521)

Hunt Area	Type	Date of Seasons Opens	Closes	Quota	Limitations
34	1	Sep. 20	Oct. 14	250	Limited quota licenses; any antelope also valid in Hunt Area 35 and 36
	6	Sep. 20	Dec. 31	275	Limited quota licenses; doe or fawn also valid in Hunt Area 35 and 36
	7	Nov. 1	Dec. 31	150	Limited quota licenses; doe or fawn also valid in Hunt Area 35 and 36
35	1	Sep. 20	Oct. 14	375	Limited quota licenses; any antelope also valid in Hunt Area 34 and 36
	6	Sep. 20	Dec. 31	300	Limited quota licenses; doe or fawn also valid in Hunt Area 34 and 36
36	1	Sep. 20	Oct. 14	175	Limited quota licenses; any antelope also valid in Hunt Area 34 and 35
	6	Sep. 20	Dec. 31	125	Limited quota licenses; doe or fawn also valid in Hunt Area 34 and 35
ARCHERY					
34,35,36		Aug. 15	Sep. 19	Refer to Section 3 of this Chapter	

Hunt Area	Type	Quota change from 2012
34	7	+75
35	7	-75
36	6	-50
36	7	-50
Herd Unit Total	**1**	**0**
	6	**-50**
	7	**-50**

Management Evaluation

Current Management Objective: 7,000
2012 Postseason Population Estimate: ~6,200
2013 Postseason Population Estimate: ~5,500

Herd Unit Issues

The management objective for the Hawk Springs Herd Unit is a post-season population objective of 7,000 pronghorn. The management strategy is recreational management with a pre-season buck ratio range of 20-59 Bucks:100 Does. The objective and management strategy were last revised in 2000. As of this JCR submission a reduction of the numeric objective from 7,000 to 6,000 and the combination of the three hunt areas is recommended for Commission approval.

Hawk Springs Herd Unit consists of 90% private land, making management difficult at times. Recreational opportunities are limited to traditional landowners that have not leased out the hunting rights and land enrolled into the department's PLPW program. There are state owned lands scattered throughout the herd unit that are accessible and can be productive at times. Access for does and fawns later in the season is not difficult and most landowners are willing access to try and reduce the population. Hunt Area 36 is becoming more difficult to find a pronghorn due to encroachment from urban sprawl and industrial development. Wind energy is expected to take place by 2020. To what extent this will affect pronghorn remains to be seen. Wind companies have been collecting baseline data in Hunt Area 34 along the Goshen Rim, which falls within crucial winter range. Mitigation efforts for disturbance will be placed as issues arise. To try and simplify regulations and increase opportunities for hunters we will combine hunt areas 34-36 into one hunt area for the 2014 season.

Weather

Weather during 2012 and into 2013 was extremely dry and warmer than normal. Portions of Southeast Wyoming received little summer precipitation. However, fawn production was similar to past years, most likely due to the availability agriculture fields that provided does the necessary diet needed for lactation. The winter of 2012-13 has been mild with little snow fall. There have been periods of below normal temperatures but then they swing back to days > 50 degrees Fahrenheit. Ungulates went into the winter in poor body condition as a result of the drought above normal winter mortality could occur if normal or above average winter conditions exist from March to May . The spring/summers of 2010 and 2011 received above normal precipitation that resulted in fawn to doe ratios of 46:100 both years, which was similar to the long term average of 47:100. However, the winter of 2010 experienced above normal precipitation with high snowpack resulting in poor over winter survival. The winter of 2011 was normal within this geographic area. Refer to the following websites for weather data: http://www.ncdc.noaa.gov/temp-and-precip/time-series/ and http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html.

Habitat

We do not have established habitat transects for this herd. Mule deer transects were established in 2000. However, they have been abandoned recently due to lack useful data. Habitat indices did indicated that shrubs were underutilized with low production and lacked the nutrient requirements needed during winter months. Pronghorn in this herd unit are mostly dependent on

irrigated and dryland crops. The reader is referred to the Strategic Habitat Plan Annual Report for further habitat information within the Laramie Region (http://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/SHP12_AR_LARAMIEREGION0004110.pdf).

Field Data

This herd has been stable to declining due to poor fawn production for the past ten years (10-year average: 47 fawns:100 does) which pushed this herd below its management objective. License numbers have stayed above levels needed to slow the population decline due to damage issues throughout the herd unit. There were 1,675 licenses (Type 1 and Type 6) available in 2011 and 1,750 licenses (Type 1, Type 6 and Type 7) in 2012 to try and drive this population below objective. However, only 84% of the hunters went to the field, which supports the trend in poor hunter participation. According to the harvest survey the hunters that did go to the field showed that 80% of the hunters were either satisfied or very satisfied with their hunt. Based on conversations from the field this seems plausible. Hunters indicated they enjoyed the experience and had plenty of opportunity. The combination of poor fawn recruitment and harvest rates has resulted in a population that is 22% below the objective, just out of management recommendations of 20%. The sample size for field check tooth data collected in the field is too small to provide any relevancy for population parameters. What age data collected indicates the majority of male pronghorn are 3 years or older, which is typical of hunters looking for a mature buck. Females range from 1+ to 3+ which is plausible given there is not a way to judge the age of females in the field (page 4 of JCR).

Harvest Data

Hunter success of 89% in 2012 was similar to the ten-year average of 88%. This is slightly lower than the state average of 93%. Urban sprawl, industrial gas development and loss of private land access are most likely the reasons for the lower success rate. Effort of 4.7 days per harvest in 2012 was higher than the ten-year average of 4.1 days per harvest and the 2012 state-wide effort of 3.8 days. Factors impacting success also contributed to increase in harvest effort.

Population

Trends in harvest statistics (stable success, increasing effort) seem to support model simulations of a decreasing population.The “Constant Juvenile – Constant Adult Survival” (CJCA) spreadsheet model was chosen for the post season population estimate of this herd. The model did have the lowest AIC score, and the population estimate appears reasonable. The line-transect in 2007 was ignored and the independent estimates of 2001 and 2003 are similar to model estimates. The model predicted a decreasing trend since 2007, given poor fawn production and increased female harvest since 2002 this seems plausible and of good quality. WGFD personnel observations indicate that pronghorn densities would support this trend. However, landowners still think there are too many pronghorn and would like to see a continued decrease in the population.

The 2012 postseason population estimate was about 6,200 pronghorn with the population slowly trending downward from a high of 9,300 in 2006. The last line-transect survey was conducted in this herd unit was June 2007 that resulted in a population estimate of 21,000 pronghorn. This survey implied the herd increased by 62% from the previous line-transect conducted in 2003

with a population estimate of 8,100. Given poor fawn production, poor habitat conditions and loss of habitat this estimate does not seem plausible. As a result this model is anchored to the 2003 line-transect estimate.

This season traditionally occurs during the first 14 days in October. However, due to damage issues the season opening date was moved to September 20 for Hunt Areas 34 and 35. Based on input from landowners and the public from the recent Objective Review meetings it appears there is agreement to try and simplify the management of this herd unit and combine Hunt Areas 34-36. As a precursor the opening dates will be standardized to September 20 for the three hunt areas. In addition, the Type 1, Type 6 and Type 7 licenses valid in all three hunt areas.

Management Summary

In summary, the 2013 seasons are structured to maintain the population below objective. This herd consists of 90% private land and our efforts to maintain this herd below the management objective are driven by landowner concerns and damage issues. A proposal will go before the Commission in June to decrease the objective from 7,000 to 6,000, in addition combine the three hunt areas into one. Given previous harvest rates and the 1,650 licenses available (800 Type 1 licenses, 700 Type 6 licenses and 150 Type 7 licenses) we expect to harvest 1,035 pronghorn, resulting in a post-season population estimate of 5,500 pronghorn.

INPUT	
Species:	Pronghorn
Biologist:	Martin Hicks
Herd Unit & No.:	PH521
Model date:	02/25/03

☐ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	146	155	☑ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	146	155	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	79	184	☐ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	2632	1329	5465	**9426**	2620	1032	5289	**8941**	1751	5665	**7416**				7000
1994	1957	1716	5552	**9224**	1917	1378	5288	**8583**	1834	5424	**7258**				7000
1995	1722	1797	5316	**8835**	1704	1450	5244	**8398**	1835	5340	**7175**	6102	1199		7000
1996	2800	1798	5233	**9832**	2790	1431	5113	**9334**	2164	5565	**7728**				7000
1997	1682	2121	5453	**9256**	1633	1616	5249	**8497**	1941	5302	**7243**				7000
1998	2403	1902	5196	**9502**	2379	1446	4975	**8800**	2034	5293	**7327**	5788	647		7000
1999	1724	1994	5187	**8905**	1691	1482	4937	**8110**	1840	5033	**6873**				7000
2000	1545	1803	4933	**8281**	1519	1360	4834	**7712**	1681	4900	**6581**				7000
2001	2151	1647	4802	**8601**	2148	1262	4786	**8196**	1804	5071	**6874**	8065	1399		7000
2002	1813	1767	4969	**8550**	1813	1296	4924	**8033**	1718	5088	**6807**				7000
2003	2556	1684	4986	**9226**	2538	1225	4888	**8652**	1884	5279	**7163**	8069	1122		7000
2004	2324	1846	5173	**9343**	2292	1362	5013	**8668**	1926	5305	**7231**				7000
2005	2659	1887	5199	**9745**	2627	1434	4985	**9046**	2102	5380	**7482**				7000
2006	2968	2059	5273	**10300**	2918	1527	4943	**9387**	2268	5419	**7687**				7000
2007	2352	2223	5311	**9886**	2263	1712	4916	**8891**	2223	5171	**7395**				7000
2008	2563	2179	5068	**9810**	2506	1587	4646	**8739**	2184	5005	**7189**				7000
2009	2019	2140	4905	**9065**	1915	1529	4446	**7890**	1930	4620	**6550**				7000
2010	2477	1891	4527	**8896**	2397	1212	4048	**7656**	1791	4411	**6203**				7000
2011	1997	1755	4323	**8075**	1925	1112	3727	**6764**	1658	4045	**5703**				7000
2012	1840	1625	3964	**7430**	1769	1048	3420	**6236**	1433	3672	**5104**				7000
2013	1755	1404	3598	**6758**	1684	772	3059	**5515**							7000
2014															
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2021															
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Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.63			0.90		
1994	0.63			0.90		
1995	0.63			0.90		
1996	0.63			0.90		
1997	0.63			0.90		
1998	0.63			0.90		
1999	0.63			0.90		
2000	0.63			0.90		
2001	0.63			0.90		
2002	0.63			0.90		
2003	0.63			0.90		
2004	0.63			0.90		
2005	0.63			0.90		
2006	0.63			0.90		
2007	0.63			0.90		
2008	0.63			0.90		
2009	0.63			0.90		
2010	0.63			0.90		
2011	0.63			0.90		
2012	0.63			0.90		
2013	0.63			0.90		
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:	Optim cells
Juvenile Survival =	0.627
Adult Survival =	0.898
Initial Total Male Pop/10,000 =	0.133
Initial Female Pop/10,000 =	0.547

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

	Classification Counts						Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		48.17	3.37	24.31	39.71	2.97	270	160	11	441	22.4	3.2
1994		35.25	2.76	30.90	29.19	2.45	307	240	36	583	19.7	4.8
1995		32.40	2.29	33.80	25.33	1.97	315	65	17	397	19.3	1.3
1996		53.51	3.36	34.36	40.99	2.82	334	109	9	452	20.4	2.3
1997		30.85	2.32	38.89	32.18	2.38	459	186	45	690	23.8	3.8
1998		46.26	3.03	36.61	40.00	2.76	415	201	22	638	24.0	4.3
1999		33.25	2.41	38.44	34.95	2.49	465	227	30	722	25.7	4.8
2000		31.33	2.74	36.56	44.81	3.44	403	90	24	517	24.6	2.0
2001		44.79	3.04	34.31	31.38	2.43	350	15	3	368	23.4	0.3
2002		36.49	2.61	35.57	38.41	2.70	429	41	0	470	26.7	0.9
2003		51.26	2.64	33.77	31.53	1.93	417	89	16	522	27.2	2.0
2004		44.92	2.58	35.69	35.90	2.24	440	145	29	614	26.2	3.1
2005		51.15	2.98	36.30	44.61	2.72	412	195	29	636	24.0	4.1
2006		56.29	3.23	39.06	49.05	2.95	484	300	46	830	25.9	6.3
2007		44.30	2.79	41.85	47.82	2.93	464	359	81	904	23.0	7.4
2008		50.57	3.81	43.00	63.93	4.47	538	383	52	973	27.2	8.3
2009		41.17	2.58	43.63	35.55	2.35	556	417	95	1068	28.6	9.4
2010		54.71	3.59	41.78	34.95	2.68	618	436	73	1127	35.9	10.6
2011		46.19	3.18	40.61	39.46	2.87	585	542	65	1192	36.7	13.8
2012		46.42	3.63	41.00	43.71	3.49			495	1085	35.5	13.7
2013		48.78	3.44	39.02	39.02	2.97			460	1035	45.0	15.0
2014												
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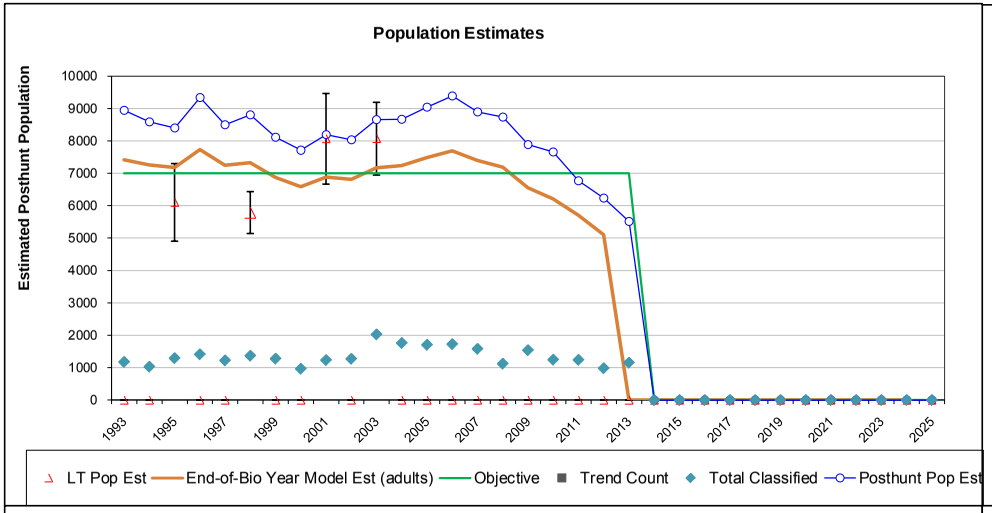
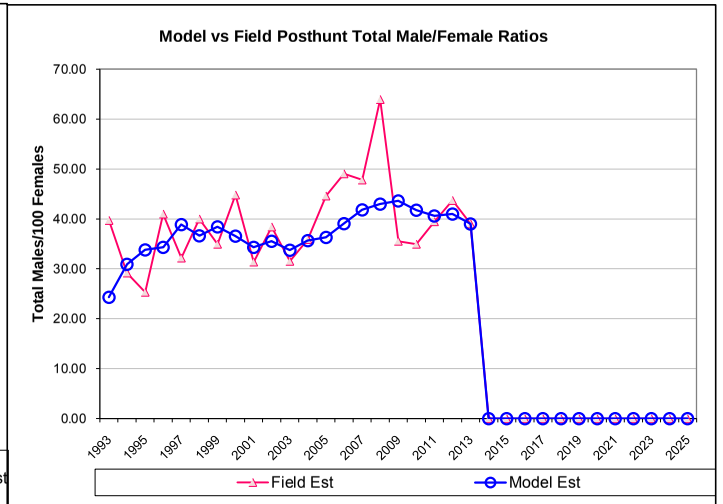
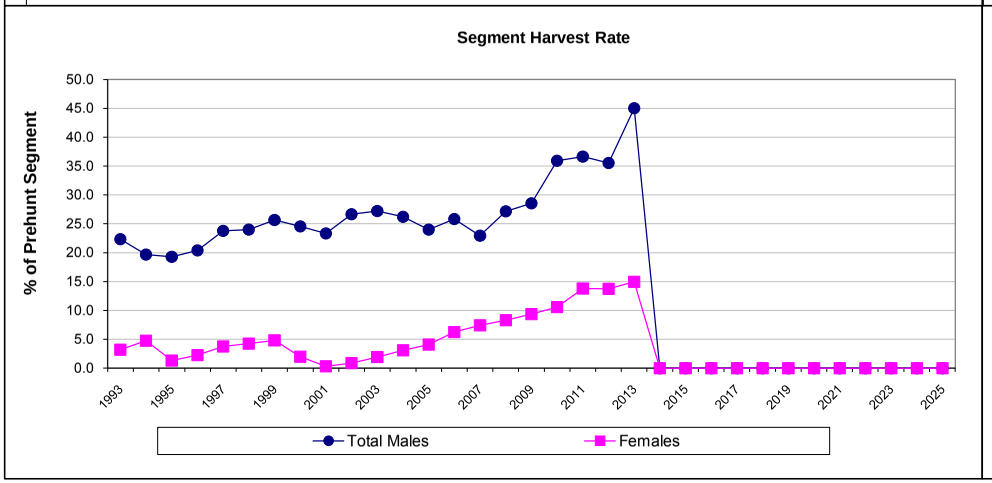
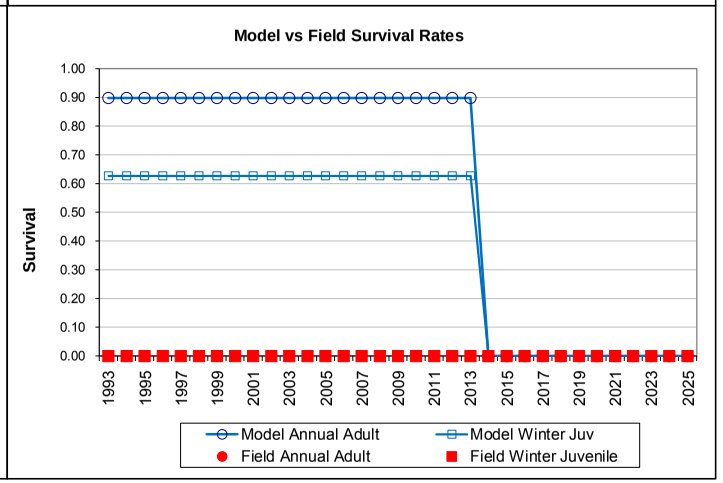
FIGURES





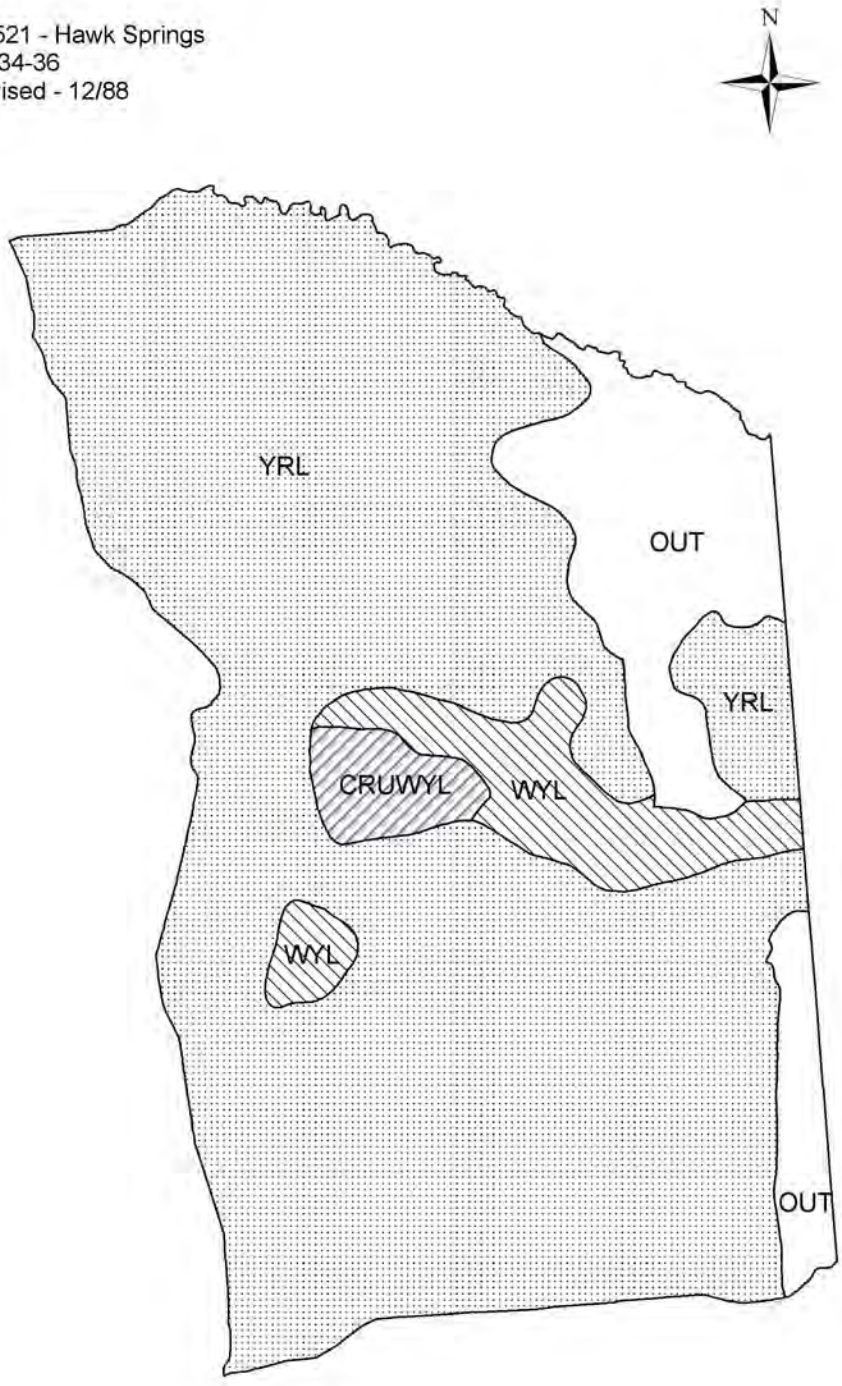




Comments:

END

PH521 - Hawk Springs
HA 34-36
Revised - 12/88



2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR522 - MEADOWDALE

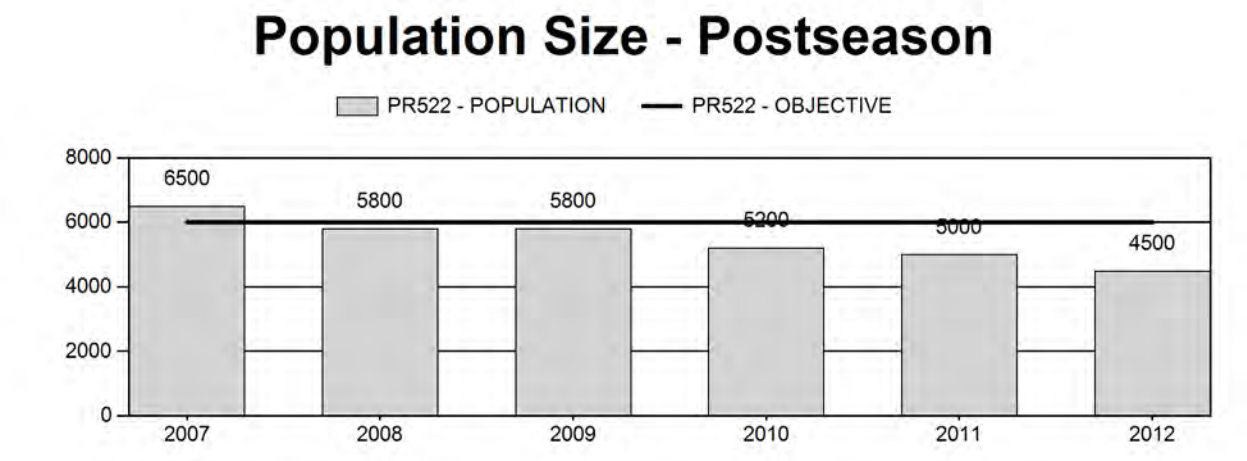
HUNT AREAS: 11
PREPARED BY: MARTIN HICKS

	2007 - 2011 Average	2012	2013 Proposed
Population:	5,660	4,500	4,400
Harvest:	712	424	480
Hunters:	731	500	540
Hunter Success:	97%	85%	89%
Active Licenses:	832	569	625
Active License Percent:	86%	75%	77%
Recreation Days:	2,361	1,698	1,850
Days Per Animal:	3.3	4.0	3.9
Males per 100 Females	36	35	
Juveniles per 100 Females	60	38	

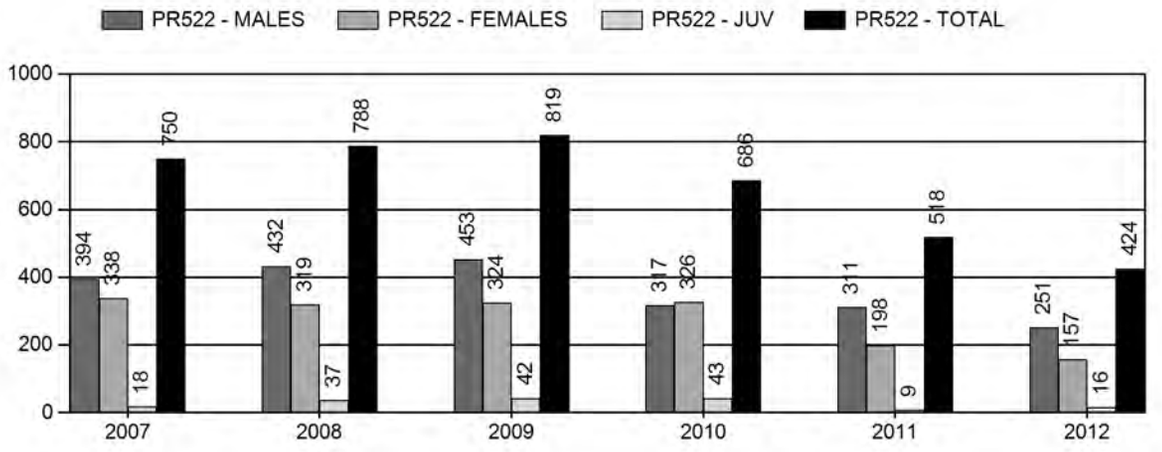
Population Objective:	6,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-25%
Number of years population has been + or - objective in recent trend:	5
Model Date:	02/28/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

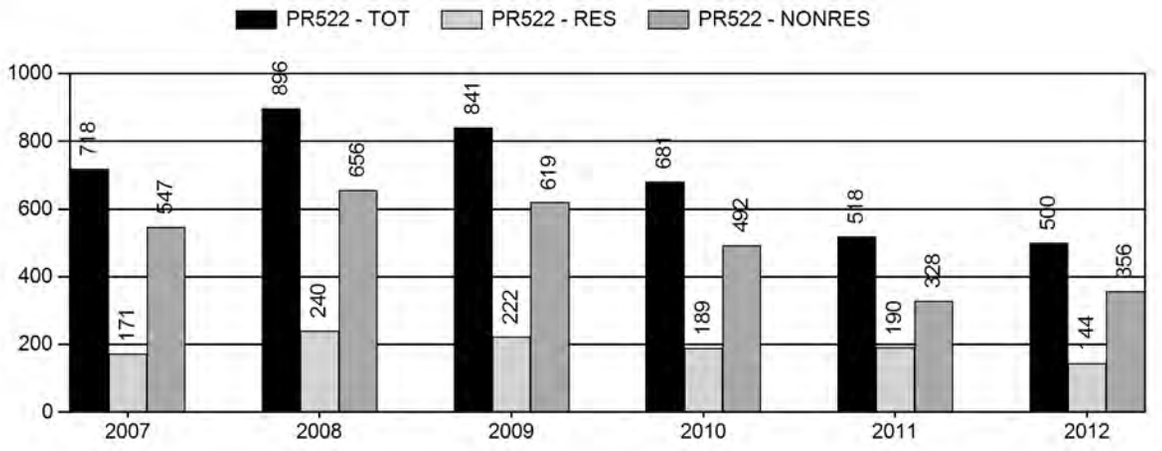
	JCR Year	Proposed
Females ≥ 1 year old:	6%	7%
Males ≥ 1 year old:	29%	41%
Juveniles (< 1 year old):	0%	0%
Total:	10%	13%
Proposed change in post-season population:	-10%	-3%



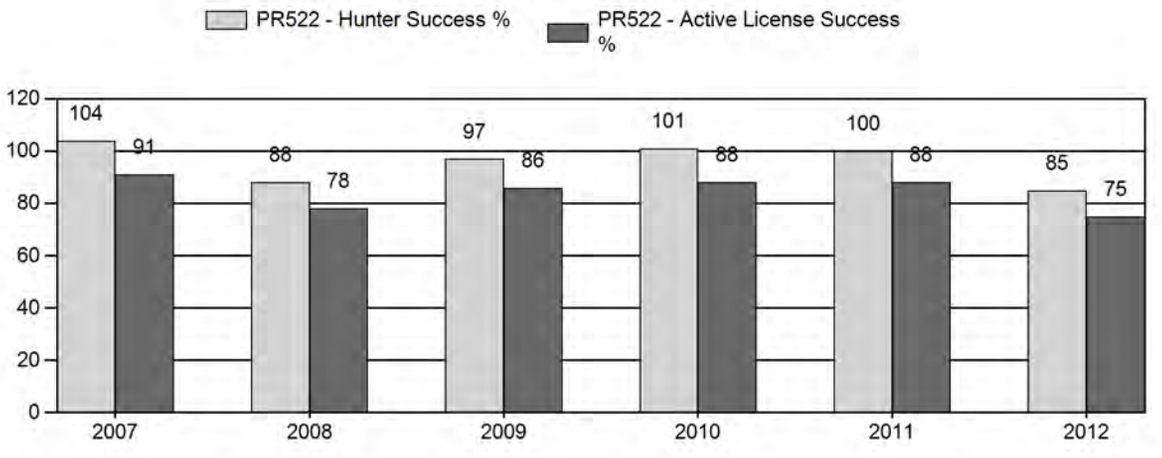
Harvest



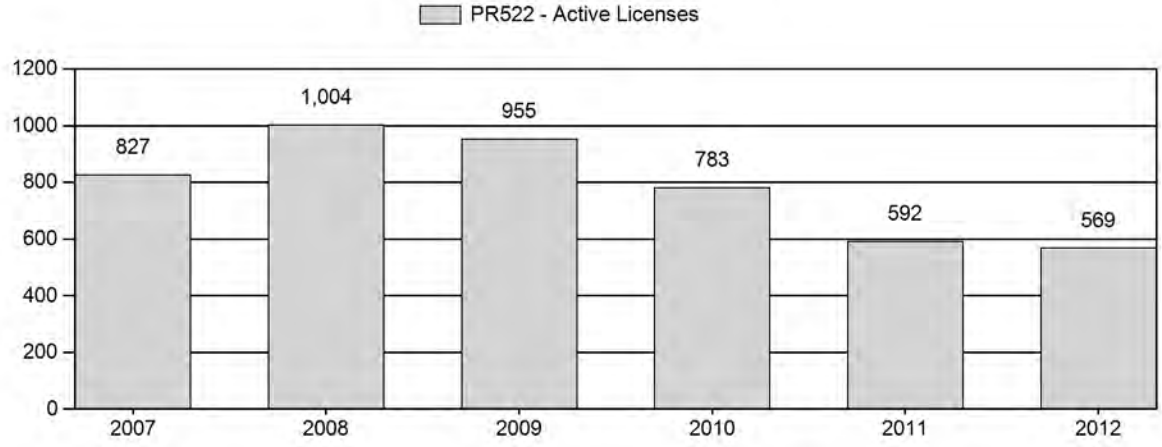
Number of Hunters



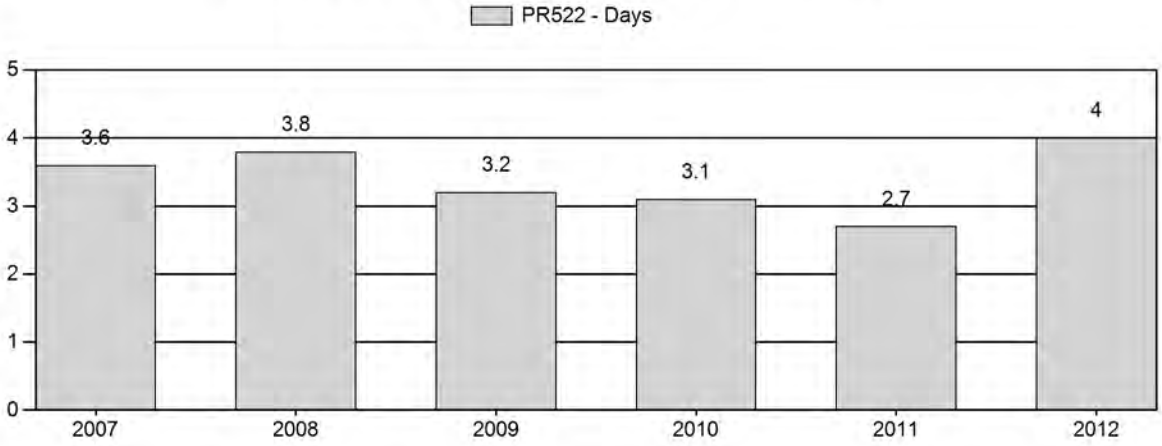
Harvest Success



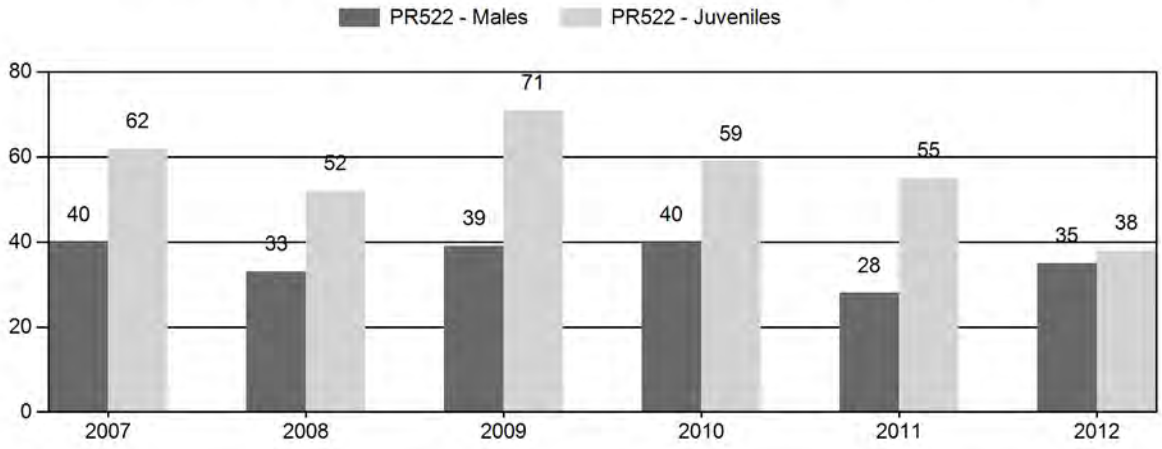
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR522 - MEADOWDALE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	7,300	80	133	213	20%	533	50%	329	31%	1,075	1,000	15	25	40	± 5	62	± 7	44
2008	6,700	72	111	183	18%	562	54%	293	28%	1,038	1,544	13	20	33	± 4	52	± 6	39
2009	6,700	71	194	265	19%	684	48%	483	34%	1,432	1,744	10	28	39	± 4	71	± 6	51
2010	6,000	80	137	217	20%	543	50%	319	30%	1,079	1,404	15	25	40	± 5	59	± 6	42
2011	5,500	32	140	172	15%	612	55%	334	30%	1,118	1,426	5	23	28	± 4	55	± 5	43
2012	4,900	62	133	195	20%	553	58%	211	22%	959	838	11	24	35	± 4	38	± 5	28

2013 HUNTING SEASONS
MEADOWDALE PRONGHORN HERD (PR522)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
11	1	Oct. 1	Oct. 15	350	Limited quota licenses; any antelope
		Oct. 16	Oct. 31		Unused Area 11 Type 1 licenses valid for doe or fawn
	6	Oct. 1	Oct. 31	200	Limited quota licenses; doe or fawn
Archery		Aug. 15	Sep. 30		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
11	1	+200
11	6	+75
12	1	- 150
12	6	- 75
Total	**1**	**+50**
	6	**0**

Management Evaluation

Current Management Objective: 6,000
2012 Post-season Population Estimate: ~4,500
2013 Post-season Population Estimate: ~4,400

Herd Unit Issues

The management objective for the Meadowdale Pronghorn Herd Unit is a post-season population objective of 6,000 pronghorn. The management strategy is recreational management, which is a 20-59 buck:100 doe range. The objective and management strategy were last revised in 1984. The herd objective was taken to the public for the 2012 biological year and based on public input the numeric objective will be decreased from 6,000 to 5,000.

Hunt Areas 11 and 12 were combined into one hunt area for the 2013 season. This combination should simplify regulations and provide additional hunting opportunity. In the past the boundary of WY Highway 270 dissected landowner properties and prevented access to the same deeded acres. This herd unit consists of 90% private land, but access is not as restricted compared to other herd units in southeast Wyoming. Landowners want to see the population reduced so access for doe/fawn hunting is liberal. There is also a large amount of walk-in areas available for Type 1 license holders.

Weather

Weather during 2012 and into 2013 was extremely dry and warmer than normal. Portions of Southeast Wyoming received little summer precipitation. Drought conditions most likely contributed to a significant decrease in fawn production of 38 fawns per 100 does compared to the long term average of 59 fawns:100 does. The winter of 2012-13 has been mild with little snow fall. There have been periods of below normal temperatures but then they swing back to days > 50 degrees Fahrenheit. Ungulates went into the winter in poor body condition as a result of the drought above normal winter mortality could occur if normal or above average winter conditions exist from March to May. The spring/summers of 2010 and 2011 received above

normal precipitation that resulted in fawn to doe ratios of 59:100 and 55:100 respectively, which was similar to the long term average of 59:100. However, the winter of 2010 experienced above normal precipitation with high snowpack most likely resulting in poor over winter survival. The winter of 2011 was normal within this geographic area. Refer to Appendix A for weather data (weather links: http://www.ncdc.noaa.gov/temp-and-precip/time-series/ and http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html).

Habitat

We do not have established habitat transects for this herd. Mule deer transects within the Goshen Rim Herd were established in 2000. However, they have been abandoned recently due to lack of useful data. Habitat data indicated that shrubs were underutilized with low production and lacked the nutrient requirements needed during winter months. Pronghorn in this herd unit is mostly dependent on irrigated and dryland crops. The reader is referred to the 2012 Strategic Habitat Plan Annual Report for additional habitat information within the Laramie Region (http://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/SHP12_AR_LARAMIEREGION0004110.pdf).

Field Data

This herd has been stable to declining since 2003. Fawn production typically runs around 58 fawns:100 does except during drought years (2002 and 2012). Bucks per 100 does have fluctuated from a low of 28:100 to a high of 59:100 within the last ten years. Low fawn recruitment and aggressive seasons that are designed to reduce the population have resulted in a decreasing population trend. There were 650 licenses (Type 1 and Type 6) available in 2011 and a decrease to 500 (Type 1 and Type 6) in 2012 to try and maintain buck ratios within management parameters and stabilize the population decline. Hunter participation increased in 2012 most likely to opened access. Hunter participation was only 78% in 2011. In 2012 Hunt Area 9 Type 6 license (n=1,250) were valid in Areas 11 and 12 increased participation to 100%.

Harvest Data

The long-term average of hunter success of 82% is significantly higher than the 2012 harvest success of 74%. Effort in 2012 was 4.0 days per harvest which is higher than the long-term average of 3.2 days per harvest. These two harvest statistics appear to support population trends. However, movement from Hunt Area 9 on the north end of the herd unit confounds population assumptions. At any given time there could be an increase or decrease of pronghorn depending on movement across Highway 18/20. The hunter satisfaction survey showed that 89% of the hunters were satisfied or very satisfied with their hunt. Based on positive comments received from the field the survey seems plausible. Sample size for tooth data collected in the field is too small to infer any population dynamics.

The 2012 post-season population estimate was about 4,500 with the population trending down from the high of 7,000 pronghorn in 2004. The last line-transect was conducted in June of 2003 that resulted in an estimate of 5,800 pronghorn. The northern portion of the herd unit continues to have the highest densities of pronghorn resulting in more acres of private lands enrolled into the PLPW walk-in program as well as landowners opening access, particularly during the doe/fawn season.

Population

The "Constant Juvenile – Constant Adult Survival" (CJCA) spreadsheet model was chosen to use for the post season population estimate of this herd. This model did have the lowest AIC score, and the population estimate appears reasonable. We conducted line-transects in 1996, 1998, 2000 and 2003 that provide independent population estimates that were similar to the model estimates. WGFD personnel observations indicate that pronghorn densities would support

this trend in the southern portion of the herd unit. However, the northern 1/3 of the herd unit continues to have high densities of pronghorn. Landowners in that portion of the herd unit have damage problems and have voiced their concern at several Department meetings over the past two years. Interchange from the Cheyenne River Pronghorn Herd Unit to the north prevents a closed population assumption, therefore providing lower confidence in the model.

Season lengths typically run the first two weeks of October to coincide with the deer season. Late doe/fawn seasons have not extended past the end of October for the past ten years. Comments were taken from landowners to determine if they preferred a longer doe/fawn season, but the majority felt a month long season was sufficient. For the 2013 season we combined hunt areas 11 and 12 to simplify management and regulations. License numbers should maintain or slightly decrease the population. However, with the Hunt Area 9 Type 6 license there is the potential to significantly reduce the population below the objective. Based on drought conditions and damage issues we feel this is an appropriate management recommendation. The model predicted a decreasing trend since 2004, given average to below average fawn production and increased female harvest since 2005 this seems plausible.

Given previous harvest rates we expect to attain a harvest of 295 males, 175 females and 10 fawns for a total harvest of 480 pronghorn. We predict a 2013 post-season population estimate of 4,400 pronghorn, 25% below the objective of 6,000.

Management Summary

In summary this herd is managed as a recreational management strategy. The 2013 is designed to provide recreational opportunity for Type 1 license holders while at the same time maintain harvest pressure on the female segment of the population to stay within the new objective of 5,000 pronghorn. Type 1 license numbers are based on trying to stay within the recreational male:female range of 20-59 bucks:100 does. During the herd objective review process the public indicated that they wanted to manage for fewer pronghorn. As a direct result of that public process the objective will be reduced from 6,000 to 5,000 pronghorn.

INPUT	
Species:	Pronghorn
Biologist:	Martin Hicks
Herd Unit & No.:	PH522
Model date:	02/25/13

☑ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	204	213	☑ CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	207	216	☐ SCJ,SCA Mod	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	152	258	☐ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	1297	1068	3165	**5530**	1271	891	3038	**5199**	1086	3170	**4256**				6000
1994	1741	1064	3106	**5911**	1707	856	2920	**5483**	1131	3133	**4264**				6000
1995	1434	1109	3070	**5613**	1414	914	2957	**5285**	1137	3122	**4258**				6000
1996	2295	1114	3059	**6469**	2295	894	2989	**6178**	1289	3328	**4617**	5800	940		6000
1997	1393	1263	3261	**5917**	1371	1053	3138	**5562**	1262	3287	**4550**				6000
1998	1874	1237	3222	**6333**	1863	1063	3157	**6084**	1370	3405	**4776**	5100	670		6000
1999	2059	1343	3337	**6739**	2035	1114	3282	**6432**	1446	3556	**5002**				6000
2000	1740	1417	3485	**6642**	1735	1201	3433	**6370**	1480	3652	**5131**	5500	760		6000
2001	1816	1450	3579	**6845**	1801	1265	3470	**6536**	1552	3693	**5246**				6000
2002	1705	1521	3620	**6846**	1682	1310	3492	**6484**	1570	3689	**5259**				6000
2003	2429	1538	3615	**7582**	2394	1219	3439	**7052**	1607	3766	**5373**	5800	890		6000
2004	2318	1575	3691	**7583**	2274	1253	3554	**7082**	1614	3854	**5468**				6000
2005	2272	1582	3777	**7631**	2231	1243	3484	**6959**	1596	3771	**5368**				6000
2006	2247	1564	3696	**7508**	2212	1223	3407	**6842**	1575	3694	**5270**				6000
2007	2235	1544	3620	**7399**	2215	1110	3249	**6574**	1467	3543	**5009**				6000
2008	1810	1437	3472	**6719**	1769	962	3121	**5852**	1230	3329	**4558**				6000
2009	2303	1205	3262	**6770**	2257	707	2906	**5870**	1071	3210	**4282**				6000
2010	1848	1050	3146	**6044**	1801	701	2787	**5290**	987	3009	**3996**				6000
2011	1609	967	2949	**5526**	1599	625	2731	**4956**	962	2988	**3950**				6000
2012	1117	943	2928	**4988**	1100	669	2756	**4525**	794	2853	**3647**				6000
2013	1422	778	2796	**4997**	1411	454	2603	**4469**							6000
2014															
2015															
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2017															
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2021															
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2023															
2024															
2025															

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.37			0.95		
1994	0.37			0.95		
1995	0.37			0.95		
1996	0.37			0.95		
1997	0.37			0.95		
1998	0.37			0.95		
1999	0.37			0.95		
2000	0.37			0.95		
2001	0.37			0.95		
2002	0.37			0.95		
2003	0.37			0.95		
2004	0.37			0.95		
2005	0.37			0.95		
2006	0.37			0.95		
2007	0.37			0.95		
2008	0.37			0.95		
2009	0.37			0.95		
2010	0.37			0.95		
2011	0.37			0.95		
2012	0.37			0.95		
2013	0.37			0.95		
2014						
2015						
2016						
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2025						

Parameters:	Optim cells
Juvenile Survival =	0.370
Adult Survival =	0.950
Initial Total Male Pop/10,000 =	0.107
Initial Female Pop/10,000 =	0.317

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

	Classification Counts										Harvest	
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		40.99	2.37	33.73	45.76	2.55	161	116	24	301	16.6	4.0
1994		56.03	3.23	34.26	31.54	2.23	189	169	31	389	19.5	6.0
1995		46.69	2.46	36.10	33.72	1.99	177	103	18	298	17.6	3.7
1996		75.03	3.99	36.41	56.85	3.29	200	64	0	264	19.7	2.3
1997		42.70	2.56	38.74	32.19	2.14	191	112	20	323	16.6	3.8
1998		58.18	3.70	38.40	45.98	3.16	158	59	10	227	14.0	2.0
1999		61.68	3.41	40.24	52.45	3.06	208	50	21	279	17.0	1.6
2000		49.94	3.09	40.65	30.96	2.27	196	47	5	248	15.2	1.5
2001		50.75	2.76	40.52	42.36	2.45	168	99	14	281	12.7	3.0
2002		47.10	2.36	42.03	31.69	1.83	192	116	21	329	13.9	3.5
2003		67.19	5.01	42.55	44.20	3.77	290	160	32	482	20.7	4.9
2004		62.81	4.77	42.66	34.97	3.24	292	124	40	456	20.4	3.7
2005		60.15	4.26	41.88	35.71	3.02	308	266	37	611	21.4	7.7
2006		60.80	3.88	42.33	59.10	3.81	310	263	32	605	21.8	7.8
2007		61.73	4.33	42.64	39.96	3.24	394	338	18	750	28.1	10.3
2008		52.14	3.76	41.40	32.56	2.77	432	319	37	788	33.1	10.1
2009		70.61	4.20	36.94	38.74	2.80	453	324	42	819	41.4	10.9
2010		58.75	4.14	33.37	39.96	3.21	317	326	43	686	33.2	11.4
2011		54.58	3.71	32.81	28.10	2.43	311	198	9	518	35.4	7.4
2012		38.16	3.09	32.22	35.26	2.94			156	421	29.0	5.9
2013		50.88	3.67	27.84	35.09	2.88			175	480	41.7	6.9
2014												
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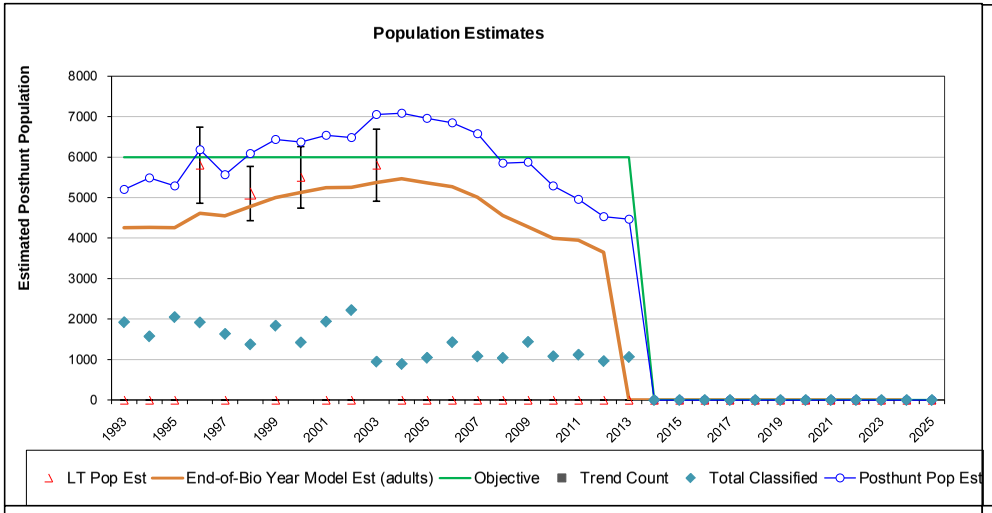
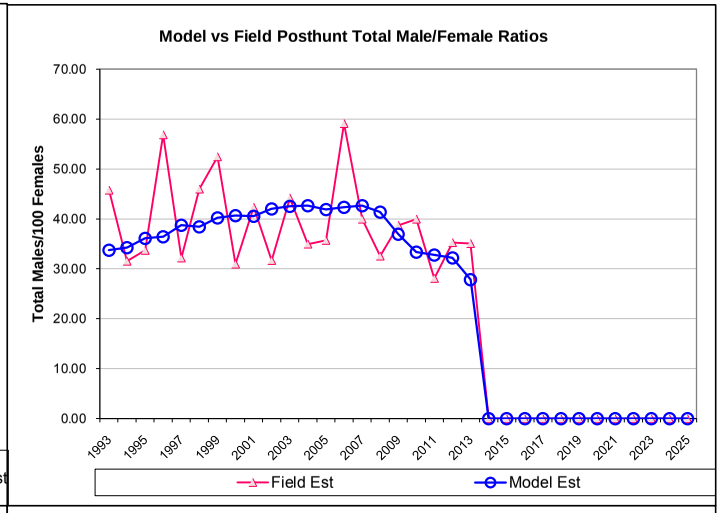
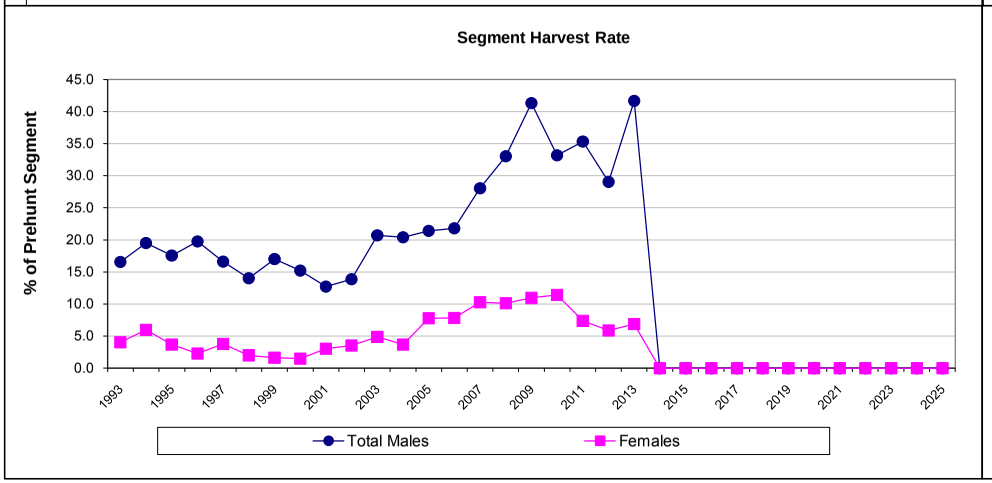
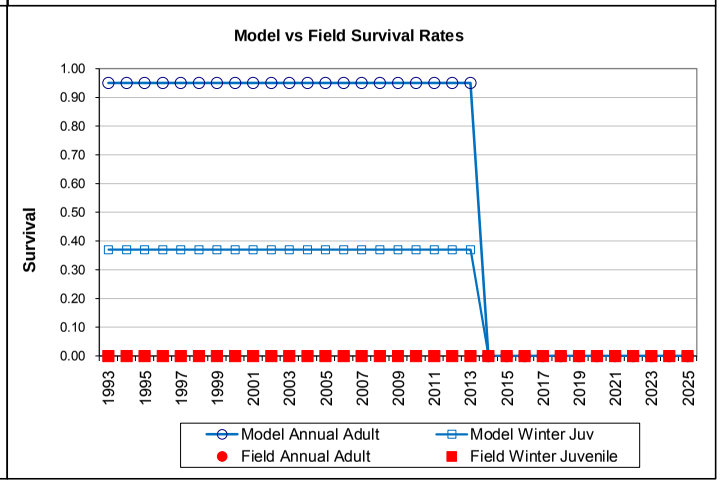
FIGURES









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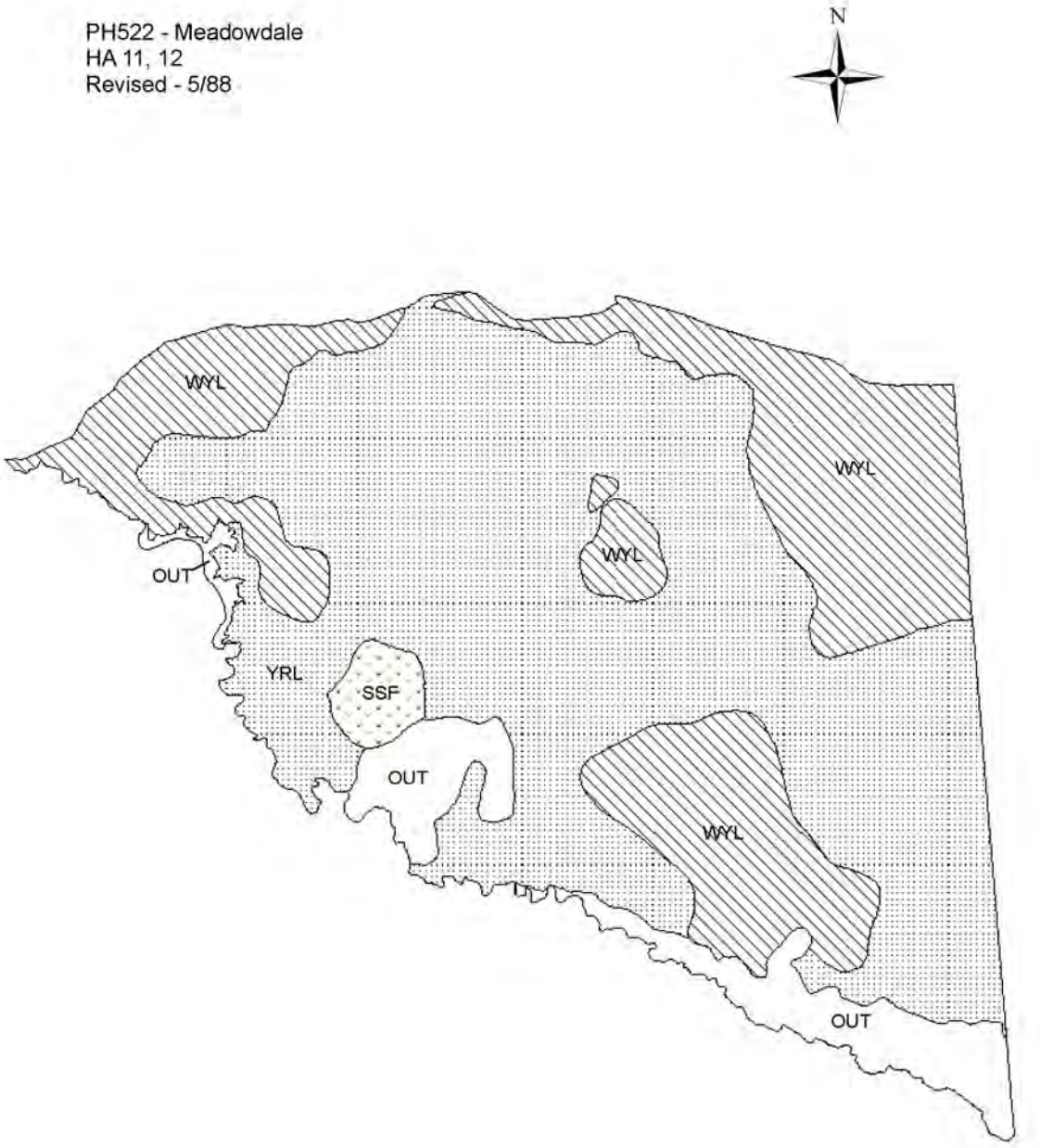
PH522 - Meadowdale
HA 11, 12
Revised - 5/88



2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR523 - IRON MOUNTAIN

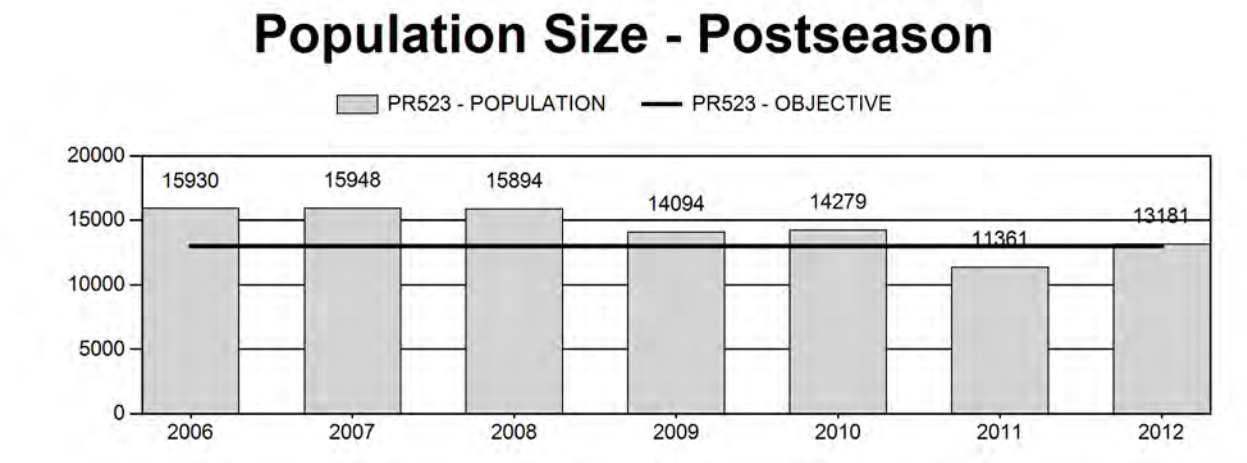
HUNT AREAS: 38-40, 104
PREPARED BY: LEE KNOX

	2007 - 2011 Average	2012	2013 Proposed
Population:	14,315	13,181	12,493
Harvest:	1,644	1,477	1,160
Hunters:	1,723	1,791	1,400
Hunter Success:	95%	82%	83%
Active Licenses:	1,980	2,046	1,700
Active License Percent:	83%	72%	68%
Recreation Days:	5,873	6,669	5,500
Days Per Animal:	3.6	4.5	4.7
Males per 100 Females	50	46	
Juveniles per 100 Females	60	69	

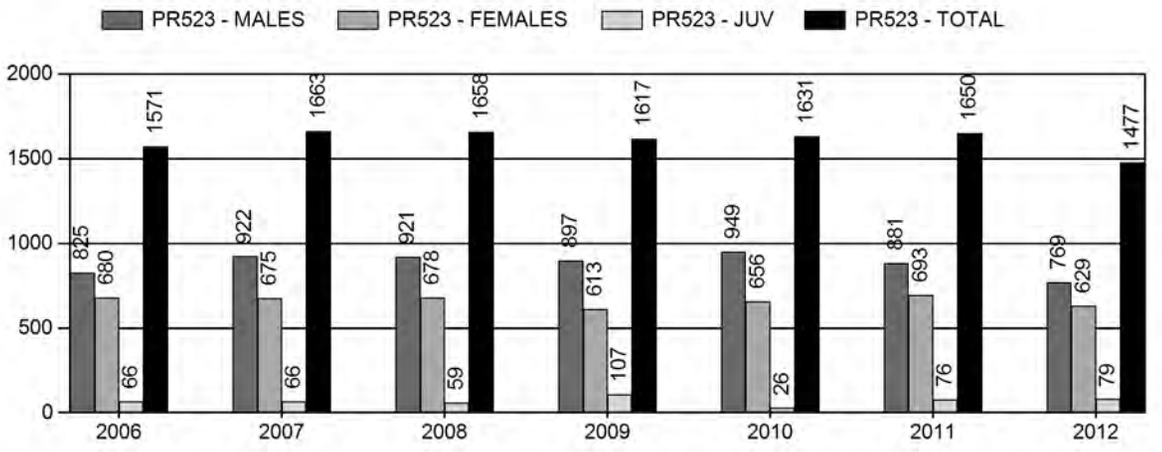
Population Objective:	13,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	1%
Number of years population has been + or - objective in recent trend:	1
Model Date:	2/26/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

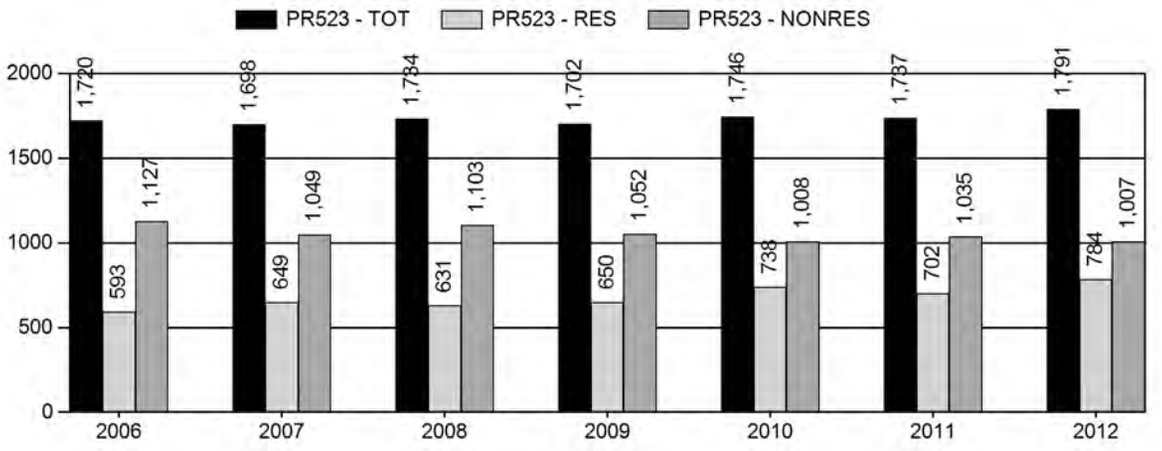
	JCR Year	Proposed
Females ≥ 1 year old:	6.5%	6.5%
Males ≥ 1 year old:	15.4%	15.5%
Juveniles (< 1 year old):	1.7%	1.5%
Total:	7.89%	7.5%
Proposed change in post-season population:	2.0%	2%



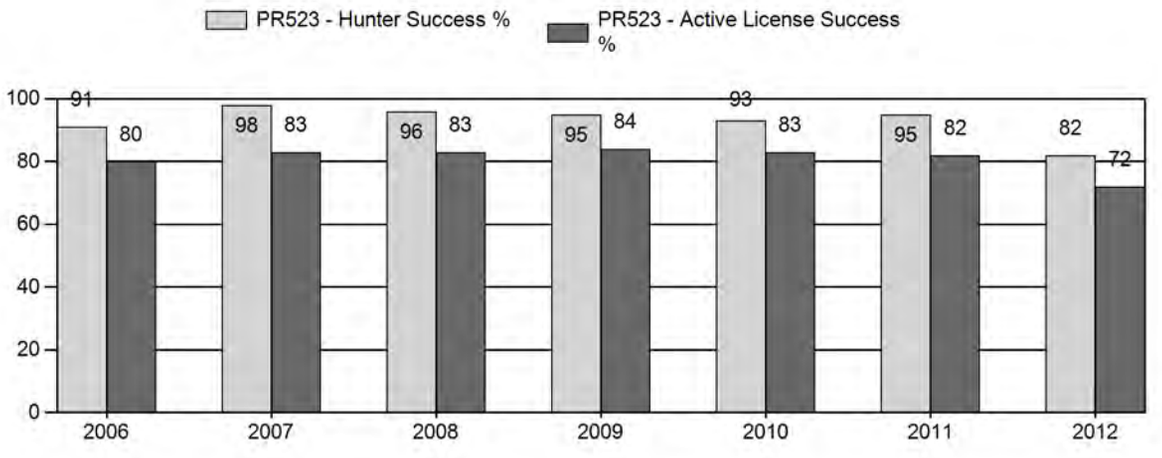
Harvest



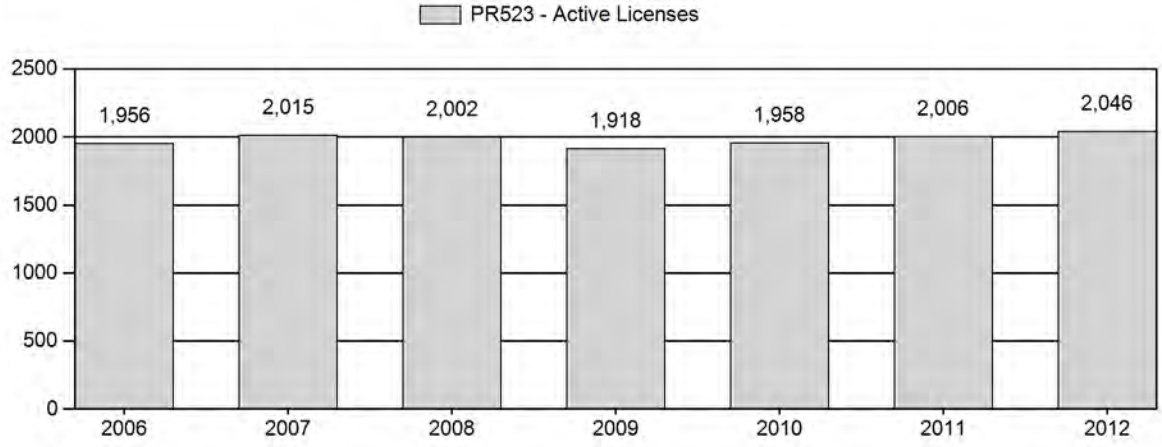
Number of Hunters



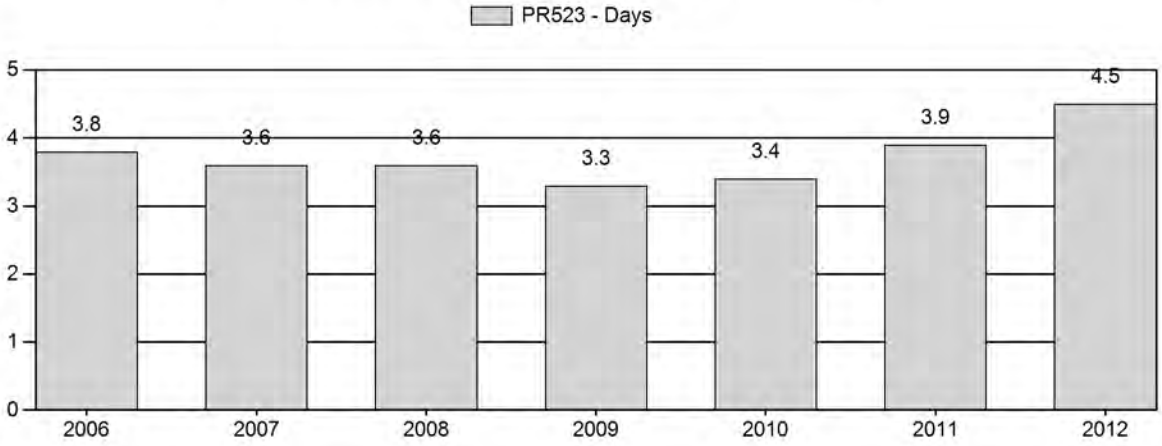
Harvest Success



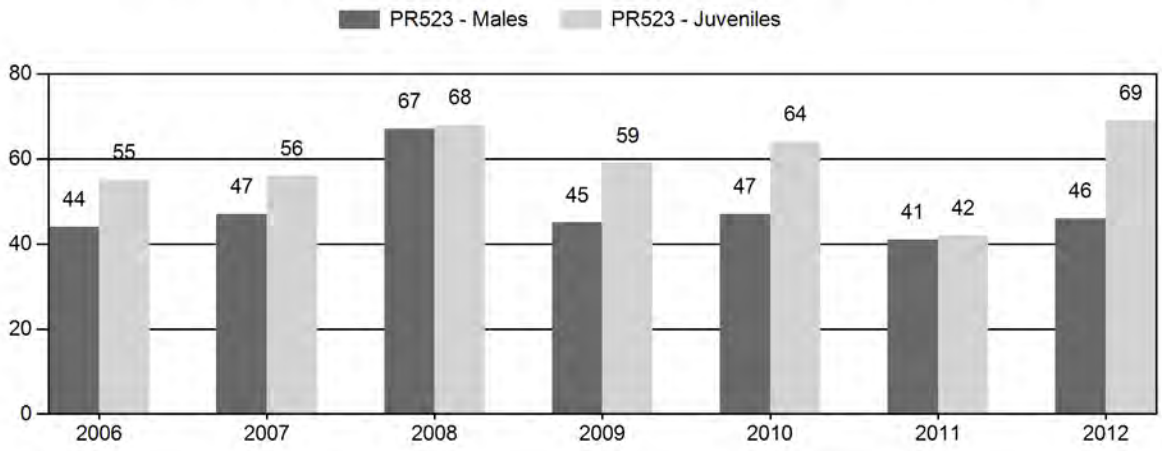
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2006 - 2012 Preseason Classification Summary

for Pronghorn Herd PR523 - IRON MOUNTAIN

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2006	17,658	117	155	272	22%	615	50%	337	28%	1,224	1,707	19	25	44	± 5	55	± 6	38
2007	17,777	127	266	393	23%	830	49%	464	28%	1,687	1,774	15	32	47	± 5	56	± 5	38
2008	17,718	136	249	542	28%	815	43%	556	29%	1,913	2,140	17	31	67	± 6	68	± 6	41
2009	15,872	160	259	419	22%	931	49%	550	29%	1,900	1,899	17	28	45	± 4	59	± 5	41
2010	16,073	182	370	552	22%	1,186	48%	755	30%	2,493	2,176	15	31	47	± 4	64	± 4	43
2011	13,176	51	89	140	23%	339	55%	141	23%	620	0	15	26	41	± 7	42	± 7	29
2012	14,825	100	260	360	21%	789	47%	547	32%	1,696	2,355	13	33	46	± 4	69	± 6	48

2013 HUNTING SEASONS
IRON MOUNTAIN PRONGHORN (PR523)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
38	1	Oct. 5	Oct. 31	450	Limited quota licenses; any antelope
	6	Oct. 5	Oct. 31	450	Limited quota licenses; doe or fawn
		Nov. 1	Dec. 31		Unused Area 38 Type 1 and Type 6 licenses valid for doe or fawn in that portion of Area 38 north of the Horse Creek-Iron Mountain Road (Laramie County Road 106-2, Platte County Road 10, Wyoming Highway 211)
	7	Nov. 1	Dec. 31	50	Limited Quota; Licenses, doe or fawn valid in that portion of Area 38 North of the Horse Creek - Iron Mountain Road (Laramie County Road 106-2 –Platte County Road 10 – Wyoming Highway 211)
39	1	Oct. 5	Oct. 31	300	Limited quota licenses; any antelope
	6	Oct. 5	Oct. 31	150	Limited quota licenses; doe or fawn
40	1	Oct. 5	Oct. 31	150	Limited quota licenses; any antelope
	6	Oct. 5	Oct. 31	100	Limited quota licenses; doe or fawn
104	1	Oct. 5	Oct. 19	200	Limited quota licenses; any antelope valid off national forest
	6	Oct. 5	Oct. 19	175	Limited quota licenses; doe or fawn valid off national forest
		Oct. 20	Nov. 15		Limited quota; Type 1 and Type 6 licenses valid in the entire area
Archery					Refer to Section 3 of this Chapter

Area	Type	Quota change from 2012
38	1	-100
	6	-150
	7	-50
39	6	+50
40	1	-50
	6	-50
Herd Totals	**1**	**-150**
	6	**-150**
	7	**-50**

Management Evaluation

Current Postseason Population Management Objective: 13,000
Management Strategy: Recreational
2012 Postseason Population Estimate: 13,200
2013 Proposed Postseason Population Estimate: 12,500

The management objective for the Iron Mountain Pronghorn Herd Unit is a post-season population objective of 13,000 pronghorn. The management strategy is recreational management with a buck ratio of 20 to 59 bucks per 100 does. The objective and management strategy were last revised in 2003 and will be reviewed in 2014.

Herd Unit Issues

The Iron Mountain Herd Unit consists of Hunt Areas 38, 39, 40 and 104 which are predominately private land with traditional agricultural uses. The 2012 post-season population estimate was about 13,000 with the population trending downward since 2009. The last line transect was conducted in June of 2004 and resulted in an estimate of 24,000 pronghorn and a Standard Error of 13,030. Access limitations hinder our ability to manage this herd. Efforts to increase harvest in accessible areas have resulted in reduced success and decreased hunt quality. Hunt Area 38 has received the greatest pressure due to access and the willingness of landowners to reduce the herd but a large portion of the population lives within Hunt Area 39 where access is highly restricted.

Weather

Weather during 2012 and into 2013 was extremely dry and warmer than normal. The Palmer Drought Severity Index ranks drought conditions in SE Wyoming as severe. The spring and summer of 2012 was one of the driest on record and we anticipated poor fawn survival; however fawn ratios increased from the previous year of 41:100 does to 69:100 does. The winter of 2012-2013 was mild resulting in good over winter survival. For specific weather information please refer to the following link: http://www.ncdc.noaa.gov/.

Habitat
Due to recent changes in staff habitat transects were not read in 2013. Current transects have not always been located in the best locations due to terrain or ownership status. We plan to revaluate each transect this spring to improve the quality of data being gathered. The spring and summer of 2012 were severe and little to no new growth was documented by field staff. Most available forge appeared to be growth from 2011. The reader is referred to the Strategic Habitat Plan Annual Report for further background information on shrub transects.

Field Data
Fawn ratios were 69 fawns: 100 does which is up from the five year average of 58 fawns: 100 does which was unexpected considering the poor range conditions. Buck ratios however were below the five year average of 49 bucks: 100 does with 46 bucks: 100 does. Hunter numbers actually increased slightly but harvest declined by almost 200 pronghorn. Hunter days to harvest has steadily gone up the last 5 years to 4.2 days in 2012 indicating hunters are having a more difficult time locating an animal or gaining access. However the hunter satisfaction survey showed 79% of hunters were either satisfied or very satisfied with their hunt.

Harvest Data
Hunter success in this herd was 74% for all licenses types. Low hunter success is directly related to lack of private land access in this Herd Unit which results in this herd being a low priority area for hunters. Most licenses are purchased after the draw by non-residents who make up 60% to 65% of the license holders. The few landowners who do allow access plan to reduce hunter numbers in 2013 due to ongoing issues with damages from hunters. With current predictions of persisting drought and declining access in Areas 38 and 40 we are decreasing licenses accordingly. We plan to combine Hunt Areas 38, 38, and 40 in 2014 to simplify regulations and allow hunters more opportunity to move where the pronghorn are most accessible.

Population
The population trend for the Iron Mountain herd is decreasing. The spreadsheet model for this herd estimates a post hunt population of 13,000. This estimate uses the Time-Specific juvenile and Constant Adult Survival model which had a SCI score of 91 and a best fit score of 1. Inaccessibility, rough terrain and low management priority combine to influence data reliability and result in a poor model. To get the model to run we truncated years to 2002 to eliminate years of poor classification data. We also did not include LT estimates as they are also of poor quality due to such large deviations in terrain height resulting in large standard errors. The model is still questionable and projects a population decline starting in 2008 continuing to present.

Management Summary
The 2013 season structure is intended to mitigate drought effects, maintain harvest on these private lands that provide hunter access as well as manage crop damage issues. According to the model if we attain the projected harvest of 1,100 pronghorn and maintain a fawn ratio of 70:100 the population should decline slightly which may allow for range conditions to improve. We predict a 2013 post season population of about 12,500. This herd has always been hard to manage towards the objective due to a large percentage of inaccessible private land.

INPUT	
Species:	Pronghorn
Biologist:	Lee Knox
Herd Unit & No.:	PR523 Iron Mountain
Model date:	07/23/12

☑ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	12	22	☐ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	3849	3870	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	1	91	☑ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
2002	4067	3496	9589	**17151**	4001	2639	9172	**15811**	3504	9728	**13232**				13000
2003	4752	3328	9242	**17322**	4677	2519	8785	**15981**	3256	9220	**12477**				13000
2004	4445	3094	8759	**16298**	4371	2244	8254	**14870**	4098	9819	**13917**				13000
2005	4844	3893	9328	**18065**	4769	3118	8618	**16505**	4130	9339	**13470**				13000
2006	4862	3924	8872	**17658**	4789	3016	8124	**15930**	4359	9207	**13566**				13000
2007	4889	4141	8746	**17777**	4817	3127	8004	**15948**	4043	8684	**12726**				13000
2008	5628	3841	8249	**17718**	5563	2828	7504	**15894**	3716	8167	**11883**				13000
2009	4583	3530	7759	**15872**	4466	2544	7084	**14094**	3731	8058	**11789**				13000
2010	4873	3544	7655	**16073**	4845	2500	6934	**14279**	3264	7491	**10754**				13000
2011	2960	3101	7116	**13176**	2876	2132	6354	**11361**	3270	7285	**10555**				13000
2012	4798	3107	6921	**14825**	4707	2251	6223	**13181**	3178	6952	**10130**				13000
2013	4146	3019	6604	**13769**	4080	2304	6109	**12493**							13000
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Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
2002	0.53			0.90		
2003	0.40			0.90		
2004	0.90			0.90		
2005	0.51			0.90		
2006	0.64			0.90		
2007	0.48			0.90		
2008	0.40			0.90		
2009	0.62			0.90		
2010	0.40			0.90		
2011	0.90			0.90		
2012	0.47			0.90		
2013	0.40			0.90		
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Parameters:	Optim cells
Adult Survival =	0.898
Initial Total Male Pop/10,000 =	0.350
Initial Female Pop/10,000 =	0.959

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	95%

Classification Counts							Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
2002		42.41	2.15	36.46	36.46	1.95	779	379	60	1218	24.5	4.3
2003		51.42	2.81	36.01	36.94	2.26	736	415	68	1219	24.3	4.9
2004		50.75	2.23	35.32	34.15	1.72	772	459	67	1298	27.5	5.8
2005		51.93	2.35	41.74	42.74	2.07	705	645	68	1418	19.9	7.6
2006		54.80	3.71	44.23	44.23	3.22	825	680	66	1571	23.1	8.4
2007		55.90	3.24	47.35	47.35	2.90	922	675	66	1663	24.5	8.5
2008		68.22	3.75	46.56	47.24	2.92	921	678	59	1658	26.4	9.0
2009		59.08	3.18	45.50	45.01	2.65	897	613	107	1617	27.9	8.7
2010		63.66	2.96	46.30	46.54	2.40	949	656	26	1631	29.5	9.4
2011		41.59	4.17	43.57	41.30	4.15	881	693	76	1650	31.3	10.7
2012		69.33	3.86	44.89	45.63	2.90	778	634	83	1495	27.5	10.1
2013		62.78	3.55	45.71	45.71	2.86	650	450	60	1160	23.7	7.5
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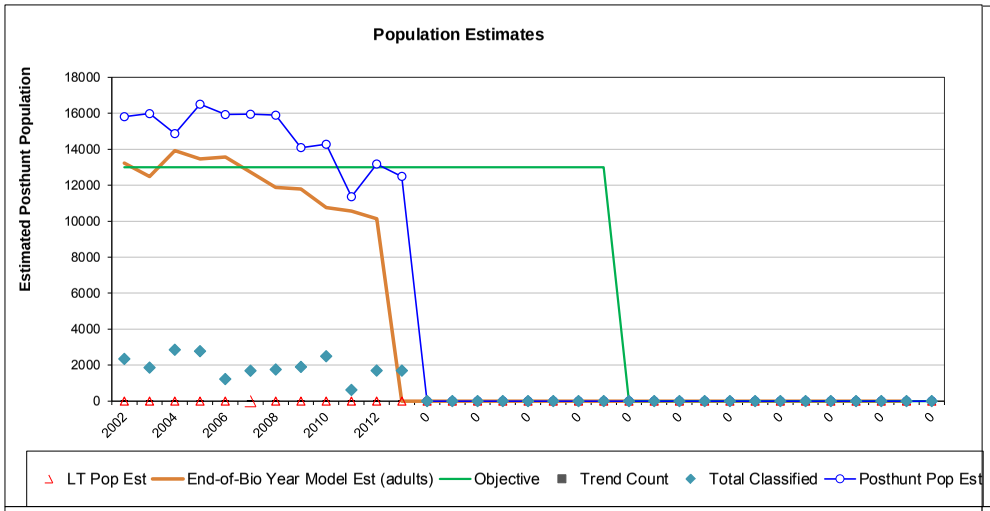
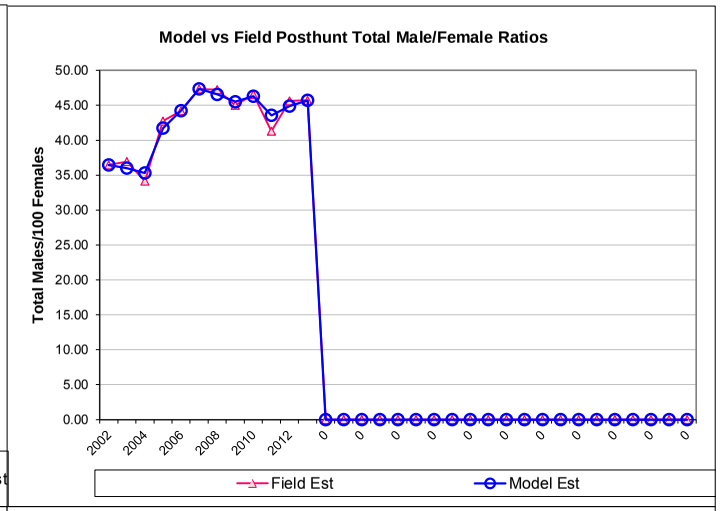
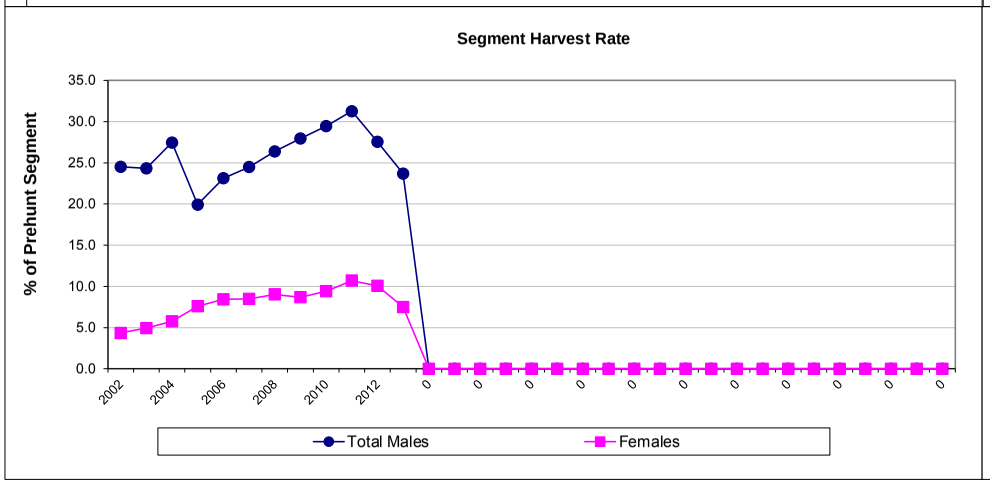
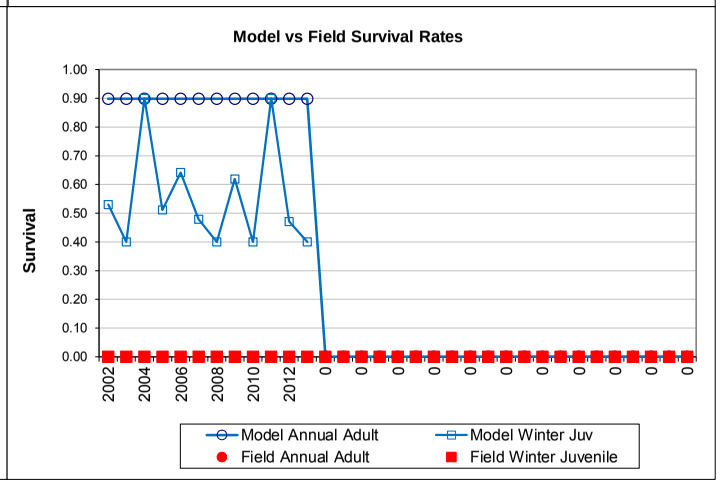
FIGURES









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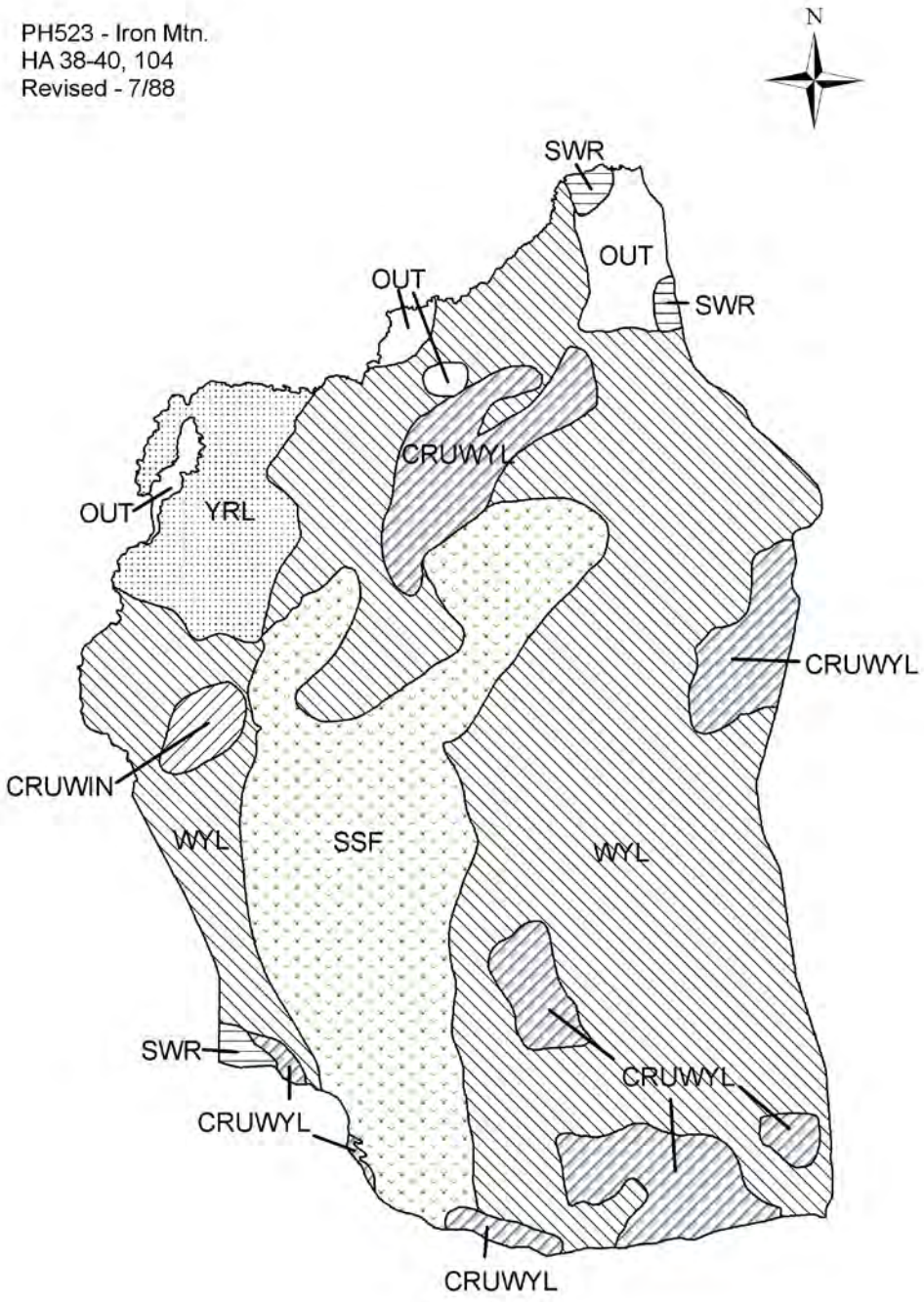
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Revised - 7/88
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2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR524 - DWYER

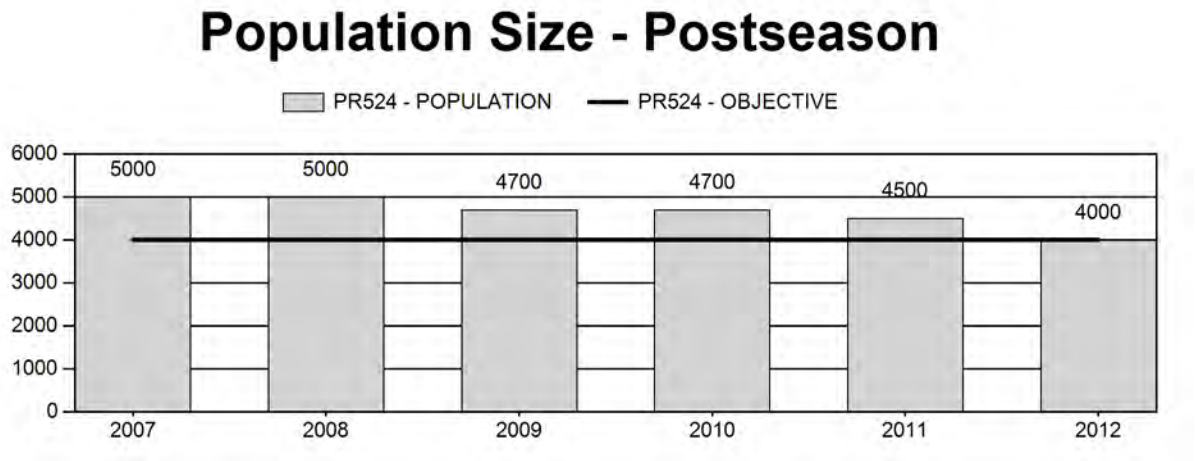
HUNT AREAS: 103
PREPARED BY: MARTIN HICKS

	2007 - 2011 Average	2012	2013 Proposed
Population:	4,780	4,000	3,500
Harvest:	485	573	620
Hunters:	499	565	600
Hunter Success:	97%	101%	103 %
Active Licenses:	579	667	700
Active License Percent:	84%	86%	89 %
Recreation Days:	1,737	2,361	2,300
Days Per Animal:	3.6	4.1	3.7
Males per 100 Females	48	61	
Juveniles per 100 Females	46	43	

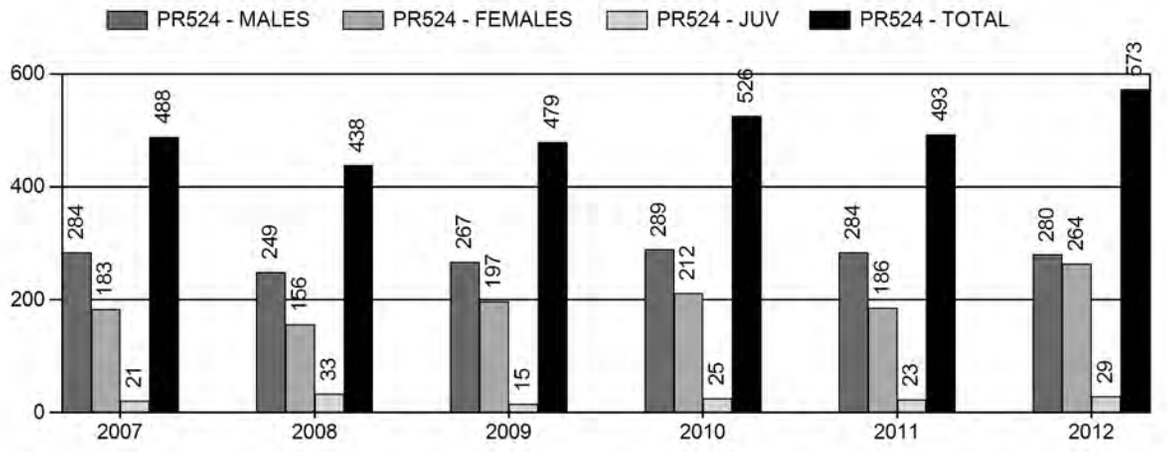
Population Objective:	4,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	0%
Number of years population has been + or - objective in recent trend:	0
Model Date:	02/26/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

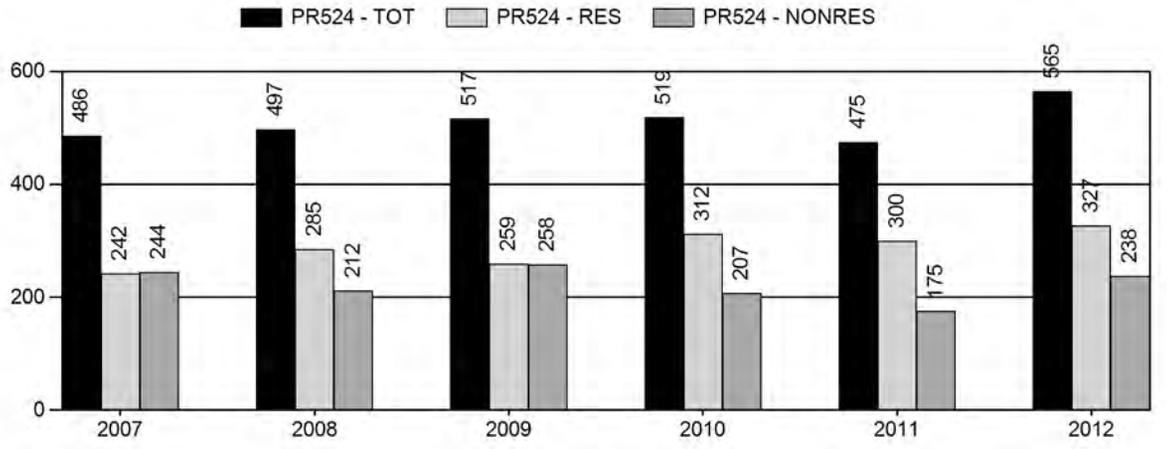
	JCR Year	Proposed
Females ≥ 1 year old:	12%	15%
Males ≥ 1 year old:	26%	32%
Juveniles (< 1 year old):	0%	18%
Total:	15%	0%
Proposed change in post-season population:	-12%	-13%



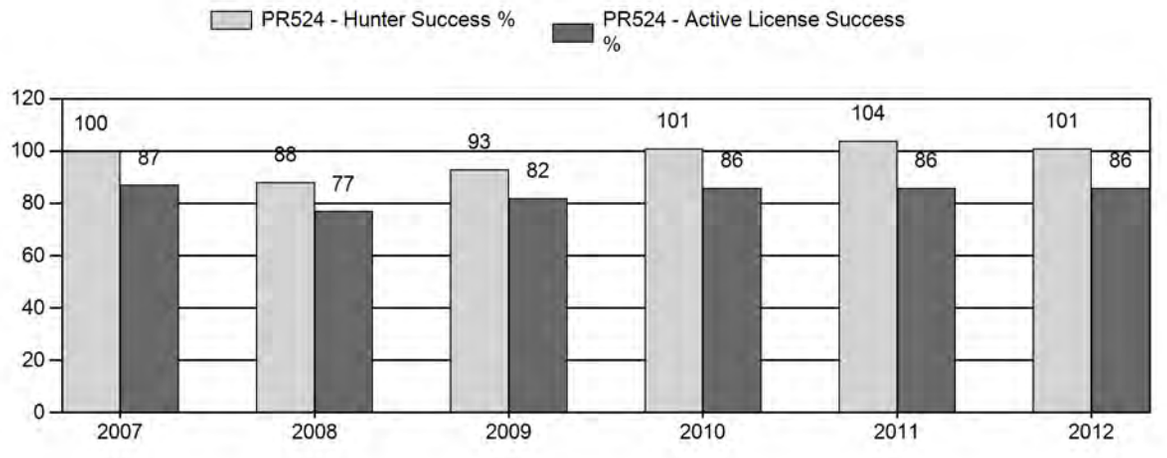
Harvest



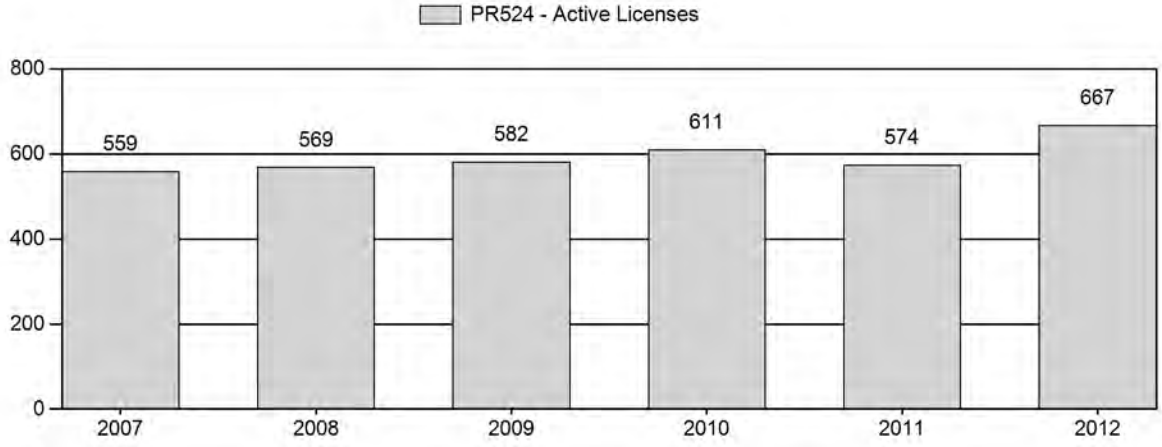
Number of Hunters



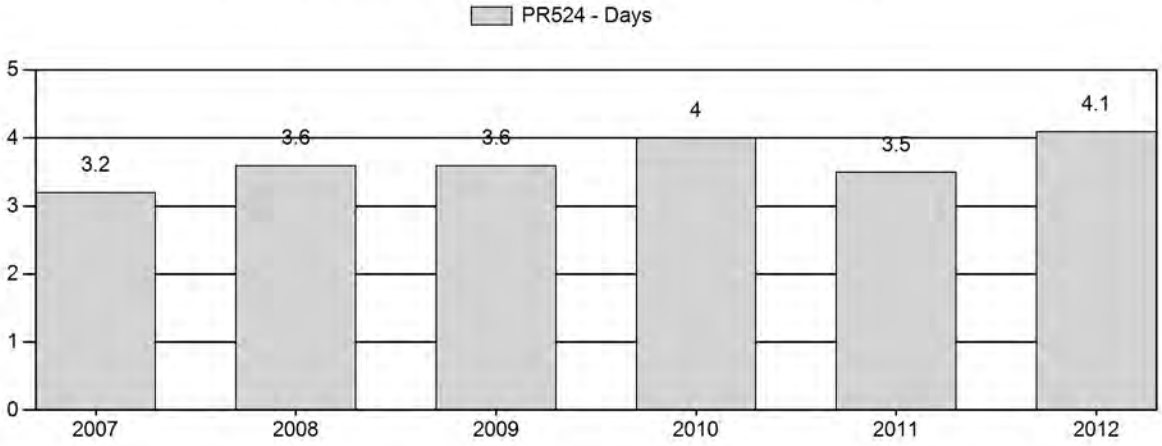
Harvest Success



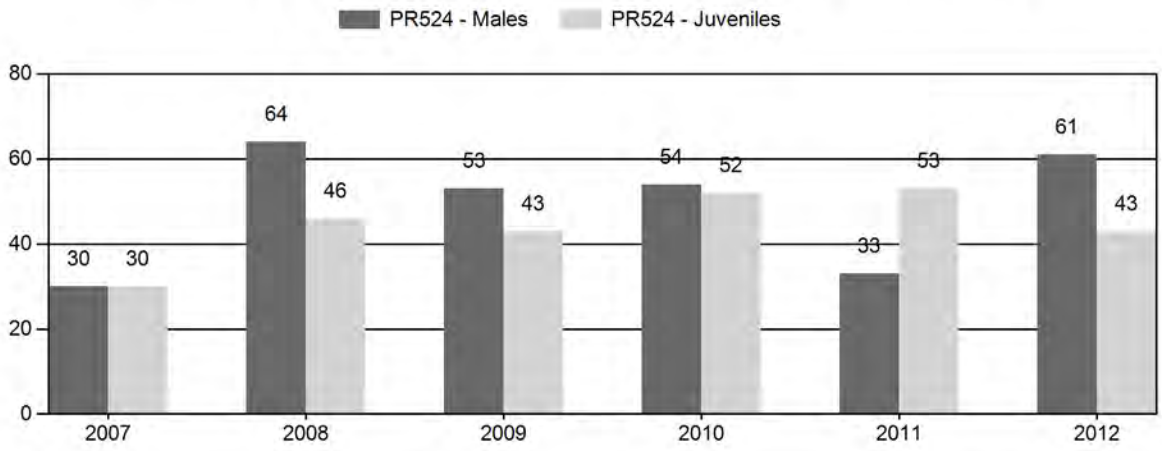
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR524 - DWYER

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	5,500	32	51	83	19%	281	63%	84	19%	448	650	11	18	30	± 6	30	± 6	23
2008	5,500	102	258	360	31%	560	47%	259	22%	1,179	984	18	46	64	± 6	46	± 5	28
2009	5,200	60	123	183	27%	345	51%	147	22%	675	1,036	17	36	53	± 7	43	± 6	28
2010	5,200	78	113	191	26%	356	49%	185	25%	732	807	22	32	54	± 7	52	± 7	34
2011	5,000	56	115	171	18%	512	54%	271	28%	954	1,345	11	22	33	± 4	53	± 6	40
2012	4,500	93	106	199	30%	326	49%	140	21%	665	1,224	29	33	61	± 8	43	± 7	27

2013 HUNTING SEASONS
DWYER PRONGHORN HERD (524)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
103	1	Oct. 5	Oct. 31	375	Limited quota licenses; any antelope
	6	Oct. 5	Dec. 31	200	Limited quota licenses; doe or fawn
	7	Oct. 5	Dec. 31	225	Limited quota licenses; doe or fawn valid south of Cottonwood Creek.
Archery		Aug. 15	Oct. 4	Refer to Section 3 of this Chapter	

Hunt Area	Type	Quota change from 2012
103	6	+50

Management Evaluation
Current Management Objective: 4000
2012 Post-season Population Estimate: ~4,000
2013 Post-season Population Estimate: ~3,600

Management Issues
The management objective for the Dwyer Pronghorn Herd Unit is a post-season population objective of 4,000 pronghorn. The management strategy is recreational management with a 20-59 buck:100 doe ratio range. The objective and management strategy were last revised in 2000 and we plan to review it again in 2014.

The Dwyer Herd Unit consists of 80% private land. However, access is not as restricted in this herd unit compared to other private land dominated herds. Damage issues have opened up access in the northern and southern portions of the hunt area. Season lengths were increased to try and reduce damage situations. There is some opportunity from the Department's PLPW program utilizing both walk-in areas and the Broom Creek Hunter Management Area for hunter access. There have been little landscape disturbances in the past ten years. Wind development has been proposed and to what extent this will affect pronghorn remains to be seen. We have been at the beginning stages of wind industries proposals, and mitigations will be recommended for any habitat loss.

Weather
Weather during 2012 and into 2013 was extremely dry and warmer than normal. Portions of Southeast Wyoming received little summer precipitation. Drought conditions most likely contributed to suppressed fawn ratios. The ten-year average of 44 fawns per 100 does is the same as the 2012 ratio. However, classification data must be interpreted with caution due to poor sample sizes. Only one out of the last ten years the sample size was reached. The winter of 2012-13 has been mild with little snow fall. There have been periods of below normal temperatures but then they swing back to days > 50 degrees Fahrenheit. Ungulates went into the winter in poor body condition as a result of the drought above normal winter mortality could

occur in normal or above average winter conditions exist from March to May. The spring/summers of 2010 and 2011 received above normal precipitation that resulted in fawn to doe ratios of 59:100 and 55:100 respectively, which was similar to the long term average of 59:100. However, the winter of 2010 experienced above normal precipitation with high snowpack most likely resulting in poor over winter survival. The winter of 2011 was normal within this geographic area. Refer to Appendix A for weather data: http://www.ncdc.noaa.gov/temp-and-precip/time-series/ and http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html.

Habitat

We do not have established habitat transects for this herd. Mule deer transects were established in 2000 for the Laramie Mountains Mule Deer Herd Unit, which overlays the Dwyer Herd Unit. Transect data from mixed mountain shrubs communities indicate the shrubs are decadent with little nutrient value. Mountain mahogany (*Cercocarpus montanus*), Antelope bitterbrush (*Purshia tridentate*) and Skunkbrush sumac (*Rhus trilobata*) are the three shrub species monitored. Transect data indicates the shrubs have little reproduction (except bitterbrush), are underutilized (except bitterbrush) and appears at least deer are keying in on other shrub species. No sagebrush species are monitored for pronghorn use. Weather events dictate habitat conditions. Above average precipitation correlates with leader production. The reader is referred to the 2012 Strategic Habitat Plan Annual Report for additional habitat information within the Laramie Region(http://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/SHP12_AR_LARAMIEREGION0004110.pdf).

Field Data

This herd has been declining since 1994. Fawn production typically runs around 44 fawn:100 does. The only year we obtained the classification sample size fawn ratios were 46:100. Bucks per 100 does have fluctuated from a low of 30:100 to a high of 64:100 in the last ten years, well within recreational management levels. If observed fawn production is plausible then the combination of poor recruitment and seasons designed to reduce the population have combined to suppress this population. There were 750 licenses (Type 1, Type 6 and Type 7) available in 2011 with an increase of 50 Type 6 licenses for 2012 to try and decrease the population, while at the same time maintain buck ratios. Managers feel with current drought conditions and damage issues harvest strategies are designed to drive the population below the objective. Hunter participation was around75% for both years, suggesting access continues to be an issue despite efforts with the PLPW program.

Harvest Data

Hunter success and effort has not fluctuated much in the last ten years. Access dynamics have remained fairly stable until recently with more acres available through the PLPW program and landowners wanting to address damage situations. Given the increase in access it seems logical that success and effort should remain fairly stable. The hunter satisfaction survey showed that 90% of the hunters were either satisfied or very satisfied with their hunt. There were conflicting reports from field personnel so this is somewhat confusing. The sample size for tooth data collected in the field is too small to infer any population dynamics.

The 2012 post-season population estimate was around 4,000 with the population trending downward from a high of 7,500 in 1994. The last line-transect survey was conducted in June 2003 and resulted in an estimated population of 5,800 pronghorn. Access has increased on the north end of the herd unit due to the creation of a Hunter Management Unit and several walk-in areas that provide access in a predominately private land herd.

Model

The population has been stable for the past several years. The "Constant Juvenile – Constant Adult Survival" (CJCA) spreadsheet model was chosen to use for the post season population estimate of this herd. The model's AIC score was significantly lower than the other two models and the population estimate appears reasonable. We conducted line-transects in 1996, 1998, 2000 and 2003 that provide independent population estimates that were similar to the model estimates. The model predicted a decreasing trend since 1994. Even thought there is large confidence interval with fawn ratios, it would appear numbers are somewhat plausible given the population runs through the independent line-transect surveys. A line-transect is warranted in the near future to validate perceived population trends. This appears to be a good working model given the data that is available.

Seasons have traditional opened on October 5 and run through the end of October, with the exception of late doe/fawn seasons. License numbers have fluctuated from 600 to 900 in the last ten years. The Type 6 and 7 licenses have been designed to direct hunters to damage areas. At times irrigated alfalfa fields will have any were from 200-300 pronghorn foraging on them in August-October, then again later in the winter. The number of doe/fawn permits will slightly increase to try and address damage as well as bring the population down. Managers of this herd feel with current drought conditions this population should be reduced below the objective.

If the projected harvest of 620 pronghorn is attained coupled with normal fawn recruitment the pronghorn population will continue to decline, but still within the objective range of 4,000. We predict a post-season population estimate of about 3,600 pronghorn.

Management Summary

In summary the herd objective will be reviewed in 2014 to determine if the current objective will change or stay the same. The 2013 season is structured to increase harvest and maintain the population slightly below the objective while addressing damage concerns.

INPUT	
Species:	Pronghorn
Biologist:	Martin Hicks
Herd Unit & No.:	PH524
Model date:	02/25/13

☑ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	113	122	☑ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	677	686	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	517	622	☐ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	1028	1745	4199	**6971**	1028	1615	4173	**6816**	1781	4151	**5932**				4000
1994	2065	1745	4068	**7878**	2058	1426	3980	**7465**	1891	4270	**6161**				4000
1995	1341	1853	4185	**7379**	1334	1536	4057	**6928**	1779	4123	**5902**				4000
1996	1950	1744	4041	**7734**	1939	1435	3890	**7264**	1864	4145	**6008**	5800	940		4000
1997	1533	1826	4062	**7421**	1533	1528	3842	**6903**	1834	3976	**5809**				4000
1998	1546	1797	3896	**7239**	1528	1493	3739	**6760**	1796	3881	**5677**	5100	670		4000
1999	1561	1760	3804	**7124**	1518	1456	3614	**6588**	1753	3754	**5507**				4000
2000	1785	1718	3679	**7182**	1763	1419	3492	**6674**	1795	3720	**5515**	5500	760		4000
2001	1698	1760	3645	**7102**	1683	1471	3478	**6633**	1823	3686	**5510**				4000
2002	1276	1787	3613	**6676**	1261	1446	3459	**6166**	1670	3545	**5215**				4000
2003	1364	1636	3474	**6474**	1336	1324	3279	**5940**	1580	3395	**4975**	5800	890		4000
2004	1294	1548	3327	**6169**	1275	1204	3135	**5614**	1449	3246	**4695**				4000
2005	1237	1420	3181	**5839**	1212	1111	2998	**5322**	1348	3101	**4449**				4000
2006	1991	1321	3039	**6350**	1940	1072	2871	**5883**	1527	3194	**4721**				4000
2007	936	1496	3130	**5562**	913	1184	2929	**5026**	1326	2947	**4274**				4000
2008	1336	1300	2888	**5524**	1299	1026	2717	**5042**	1296	2866	**4161**				4000
2009	1197	1270	2808	**5275**	1180	976	2592	**4748**	1217	2715	**3932**				4000
2010	1383	1193	2660	**5235**	1355	875	2427	**4657**	1170	2611	**3781**				4000
2011	1354	1147	2559	**5060**	1329	834	2354	**4517**	1144	2464	**3608**				4000
2012	1037	1121	2415	**4573**	1005	813	2124	**3943**	1021	2175	**3196**				4000
2013	1066	1000	2132	**4197**	1038	687	1780	**3504**							4000
2014															
2015															
2016															
2017															
2018															
2019															
2020															
2021															
2022															
2023															
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Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.58			0.90		
1994	0.58			0.90		
1995	0.58			0.90		
1996	0.58			0.90		
1997	0.58			0.90		
1998	0.58			0.90		
1999	0.58			0.90		
2000	0.58			0.90		
2001	0.58			0.90		
2002	0.58			0.90		
2003	0.58			0.90		
2004	0.58			0.90		
2005	0.58			0.90		
2006	0.58			0.90		
2007	0.58			0.90		
2008	0.58			0.90		
2009	0.58			0.90		
2010	0.58			0.90		
2011	0.58			0.90		
2012	0.58			0.90		
2013	0.58			0.90		
2014						
2015						
2016						
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2025						

Parameters:	Optim cells
Juvenile Survival =	0.579
Adult Survival =	0.904
Initial Total Male Pop/10,000 =	0.174
Initial Female Pop/10,000 =	0.420

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

	Classification Counts						Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		24.48	1.62	41.55	46.31	2.41	118	23	0	141	7.4	0.6
1994		50.76	4.81	42.89	37.16	3.92	290	80	6	376	18.3	2.2
1995		32.04	2.30	44.29	40.52	2.66	288	116	6	410	17.1	3.0
1996		48.26	3.22	43.15	41.16	2.90	281	137	10	428	17.7	3.7
1997		37.75	2.81	44.97	48.86	3.33	271	200	0	471	16.3	5.4
1998		39.67	2.75	46.12	38.03	2.68	276	143	16	435	16.9	4.0
1999		41.03	3.60	46.26	53.36	4.28	276	173	39	488	17.3	5.0
2000		48.51	4.63	46.69	57.74	5.21	272	170	20	462	17.4	5.1
2001		46.57	4.02	48.27	57.68	4.64	262	152	13	427	16.4	4.6
2002		35.33	3.78	49.46	50.00	4.74	310	140	14	464	19.1	4.3
2003		39.25	3.57	47.10	48.13	4.08	284	177	25	486	19.1	5.6
2004		38.88	3.48	46.53	40.00	3.55	313	175	17	505	22.2	5.8
2005		38.90	3.45	44.66	52.31	4.18	281	166	23	470	21.8	5.7
2006		65.51	5.61	43.46	50.43	4.69	226	153	46	425	18.8	5.5
2007		29.89	3.72	47.81	29.54	3.69	284	183	21	488	20.9	6.4
2008		46.25	3.48	45.01	64.29	4.34	249	156	33	438	21.1	5.9
2009		42.61	4.20	45.22	53.04	4.85	267	197	15	479	23.1	7.7
2010		51.97	4.71	44.83	53.65	4.81	289	212	25	526	26.7	8.8
2011		52.93	3.98	44.82	33.40	2.95	284	186	23	493	27.2	8.0
2012		42.94	4.34	46.42	61.04	5.49			264	573	27.5	12.0
2013		50.00	4.33	46.92	46.25	4.11			295	620	31.3	16.5
2014												
2015												
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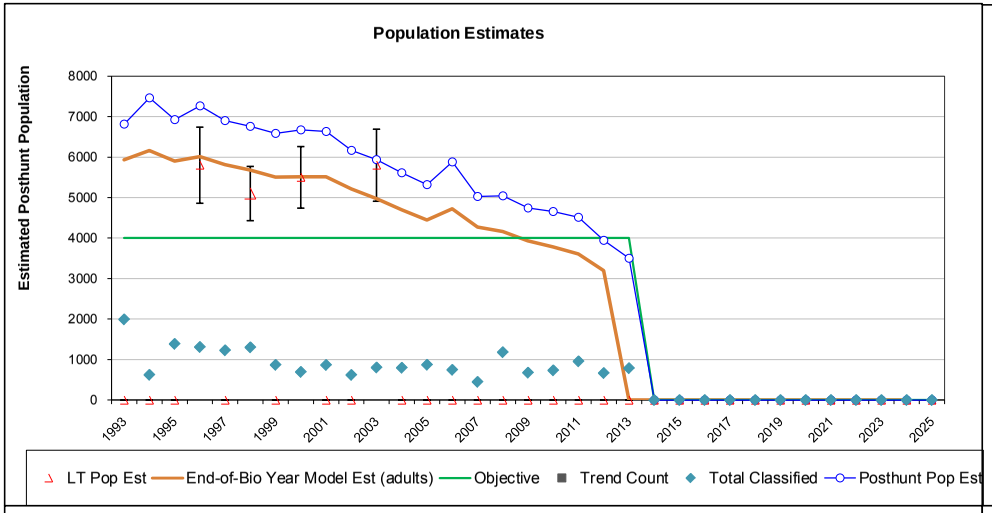
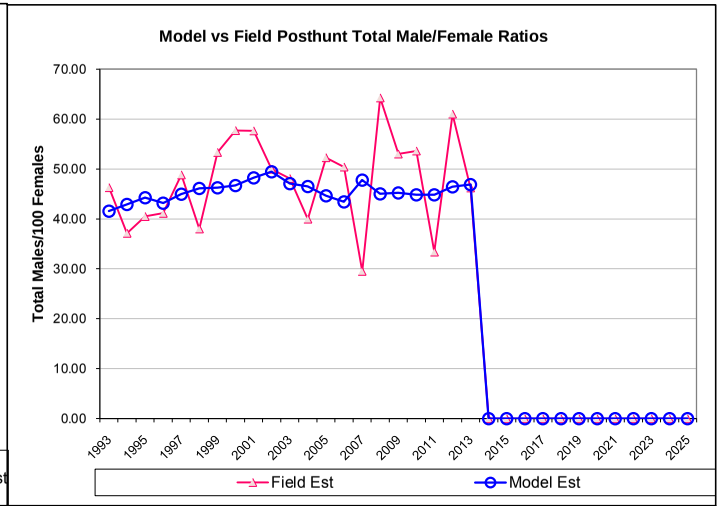
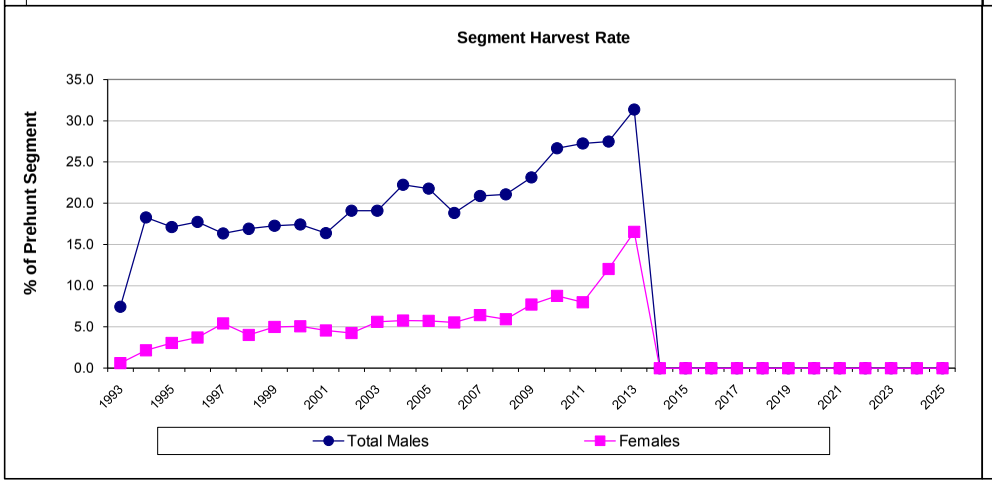
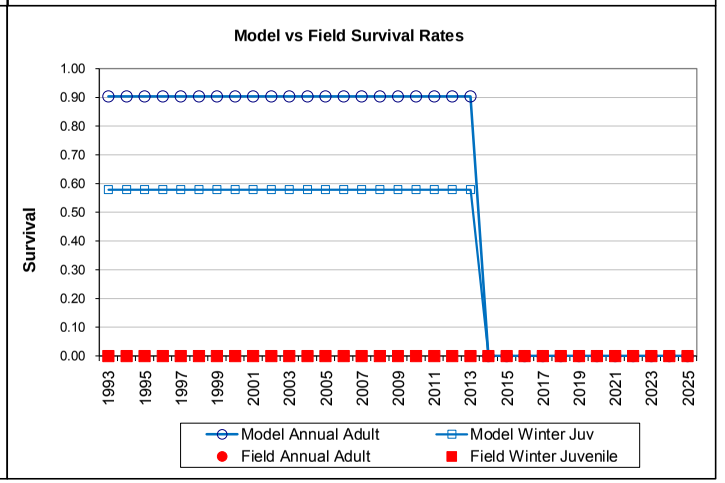
FIGURES









Comments:

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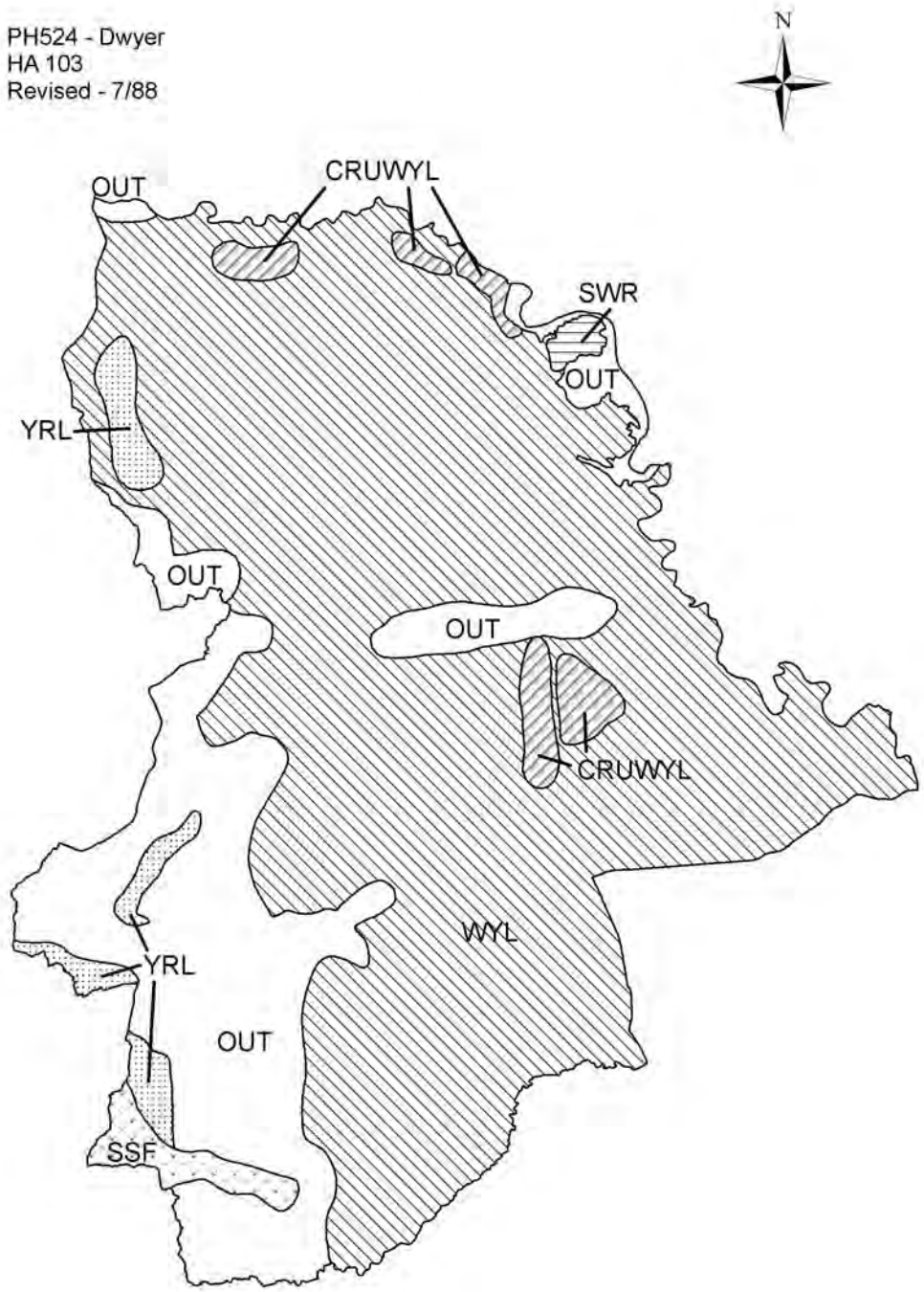
PH524 - Dwyer
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2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR525 - MEDICINE BOW

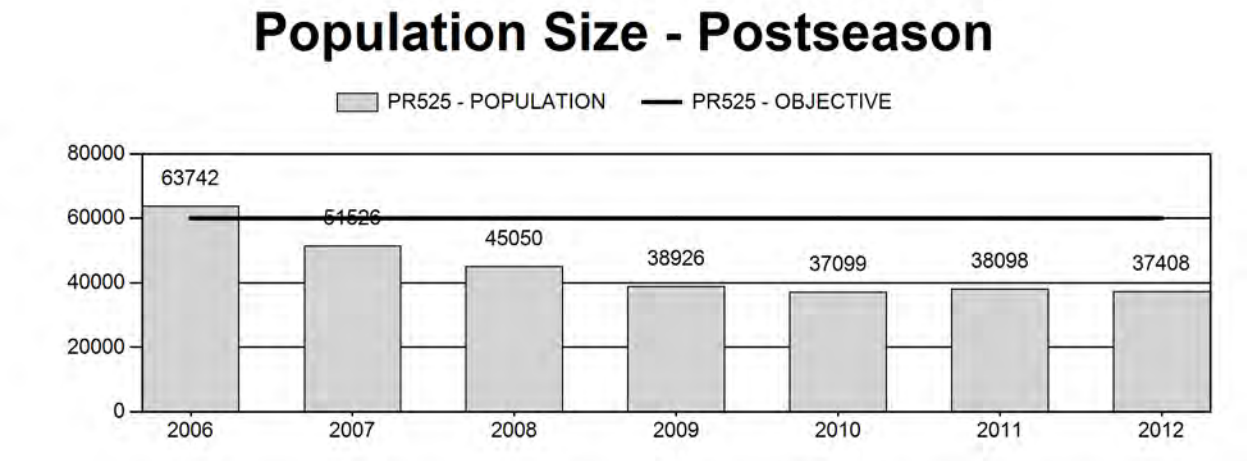
HUNT AREAS: 30-32, 41-42, 46-48
PREPARED BY: LEE KNOX

	2007 - 2011 Average	2012	2013 Proposed
Population:	42,140	37,408	41,290
Harvest:	7,290	5,749	4,300
Hunters:	7,798	6,792	5,000
Hunter Success:	93%	85%	86%
Active Licenses:	8,611	7,471	4,800
Active License Percent:	85%	77%	90%
Recreation Days:	24,347	22,123	15,500
Days Per Animal:	3.3	3.8	3.6
Males per 100 Females	49	48	
Juveniles per 100 Females	64	63	

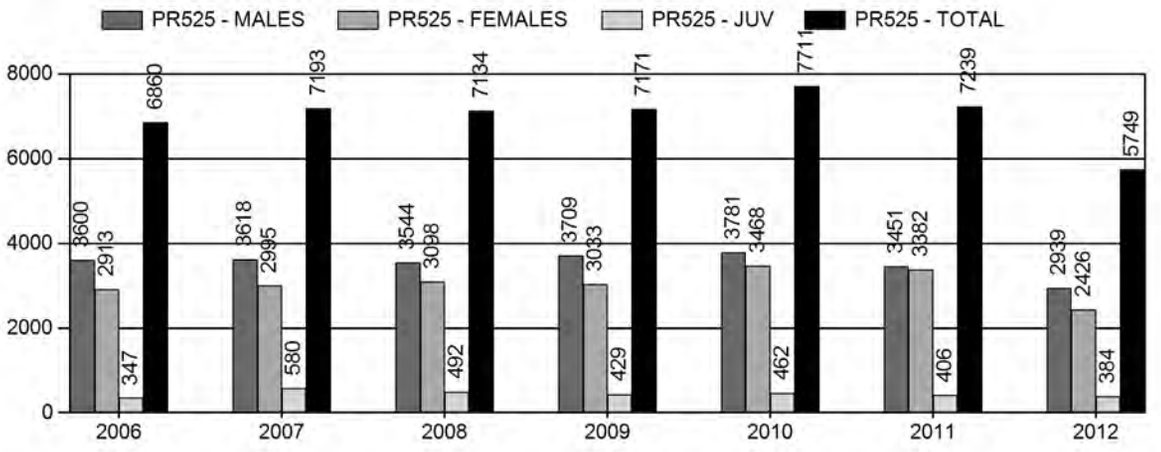
Population Objective:	60,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-37.7%
Number of years population has been + or - objective in recent trend:	20
Model Date:	2/13/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

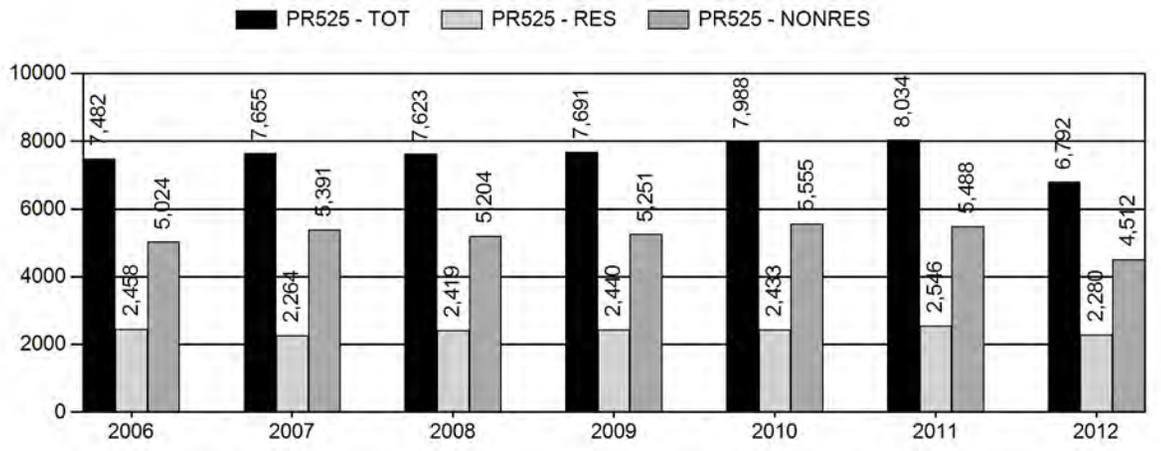
	JCR Year	Proposed
Females ≥ 1 year old:	11.8%	11.8%
Males ≥ 1 year old:	20.9%	20.9%
Juveniles (< 1 year old):	2.0%	2%
Total:	10.51%	10.51%
Proposed change in post-season population:	-1.4%	4%



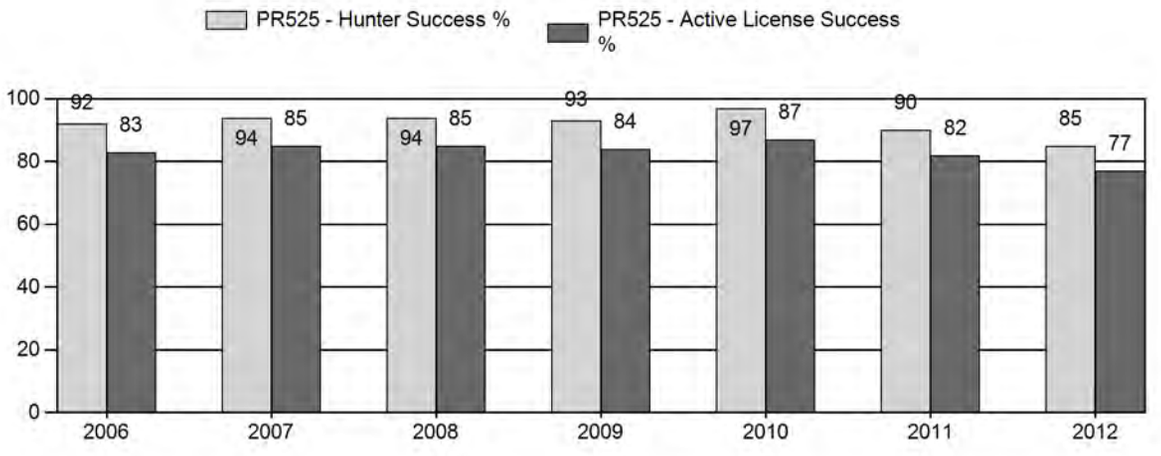
Harvest



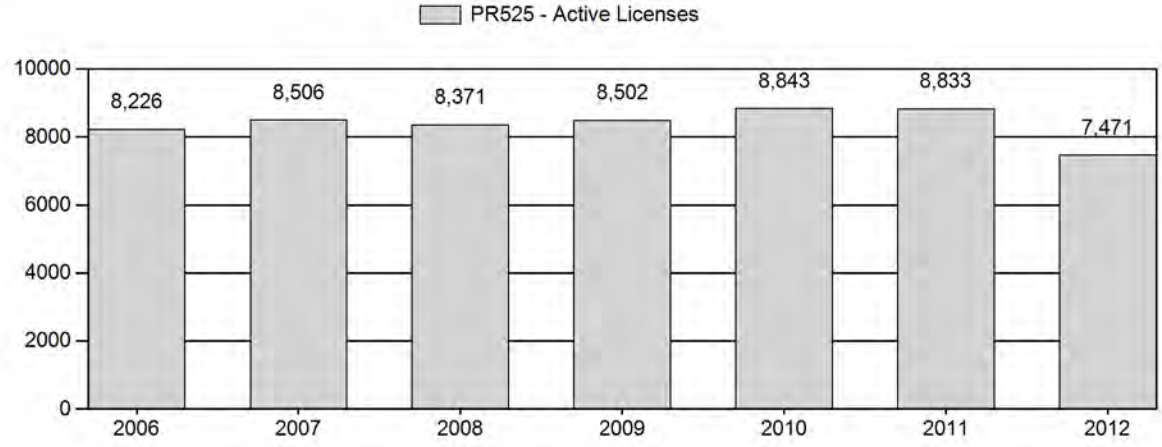
Number of Hunters



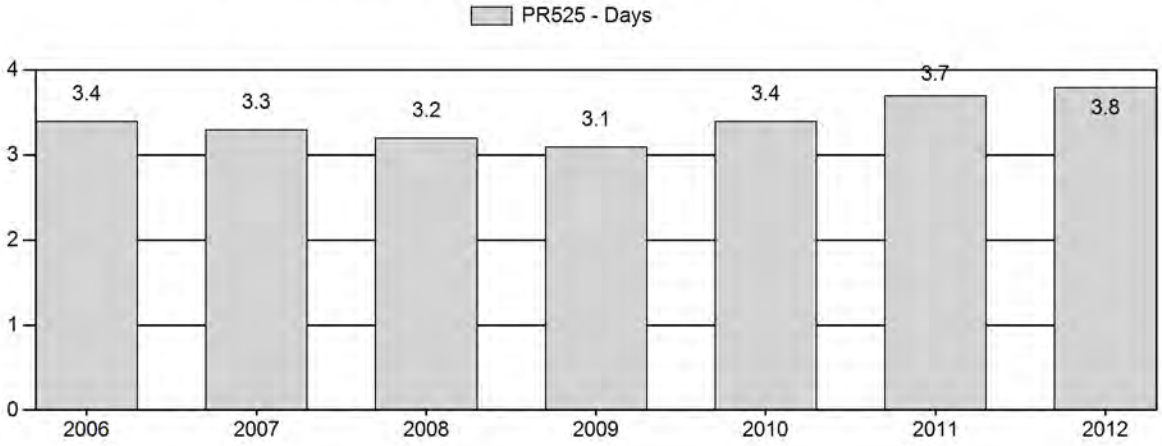
Harvest Success



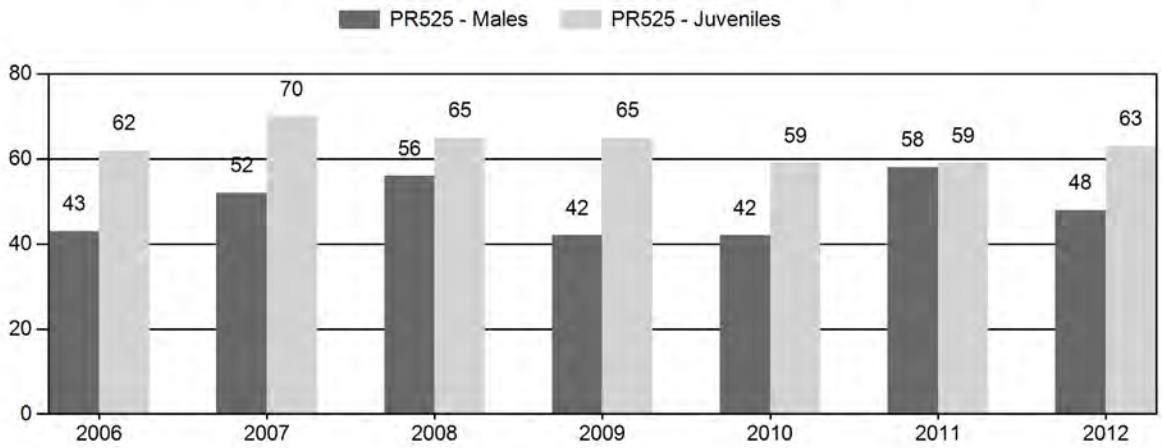
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2006 - 2012 Preseason Classification Summary

for Pronghorn Herd PR525 - MEDICINE BOW

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2006	70,426	316	601	917	21%	2,129	49%	1,326	30%	4,372	2,177	15	28	43	± 3	62	± 3	44
2007	59,439	579	805	1,384	24%	2,643	45%	1,849	31%	5,876	2,752	22	30	52	± 3	70	± 3	46
2008	52,897	427	906	1,333	25%	2,383	45%	1,547	29%	5,263	2,469	18	38	56	± 3	65	± 3	42
2009	46,814	451	940	1,391	20%	3,290	48%	2,149	31%	6,830	2,289	14	29	42	± 2	65	± 3	46
2010	45,581	446	840	1,286	21%	3,072	50%	1,809	29%	6,167	1,978	15	27	42	± 2	59	± 3	42
2011	46,061	299	994	1,293	27%	2,222	46%	1,306	27%	4,821	2,104	13	45	58	± 3	59	± 3	37
2012	43,739	321	654	975	23%	2,047	48%	1,287	30%	4,309	2,433	16	32	48	± 3	63	± 3	43

2006 - 2012 Harvest Age Structure

for Pronghorn Herd PR525 - MEDICINE BOW

	Males										Females										Herd
Year	Juv	1	% 1 *	2	3 ^	% 3 **	Total Aged ++	Not Aged +++	Unk	Total Chkd	Juv	1	% 1 *	2	3 ^	% 3 **	Total Aged ++	Not Aged +++	Unk	Total Chkd	Total
2006	19	34	11%	65	201	67%	319	17	0	336	27	24	14%	20	79	64%	150	45	0	195	531
2007	35	55	13%	82	267	66%	439	21	1	461	40	25	13%	22	106	69%	193	35	0	228	689
2008	56	32	7%	87	328	73%	503	18	19	540	63	41	19%	34	131	64%	269	8	110	387	927
2009	60	34	7%	108	162	53%	364	189	22	575	77	66	23%	45	88	44%	276	85	132	493	1,068
2010	35	20	5%	89	127	54%	271	196	34	501	90	40	20%	42	66	45%	238	54	109	401	902
2011	34	15	4%	66	209	72%	324	65	23	412	54	17	9%	38	93	63%	202	38	73	313	725
2012	23	40	12%	61	115	53%	239	131	15	385	39	15	8%	35	61	55%	150	70	50	270	655

* Percent of aged animals (including unaged adults but excluding juveniles) 1 1/2 years old

^ Number of animals three years old and older. Animals aged older than three (excluding unaged adults) are lumped into this three plus category

** Percent of aged animals (not including juveniles or unaged adults) three years old or older

++ includes juveniles

+++ Unaged adults - unaged animals older than yearlings

2013 HUNTING SEASONS
MEDICINE BOW PRONGHORN (PR525)

Hunt Area	Type	Dates of Opens	Season Closes	Quota	Limitations
30	1	Oct. 5	Oct. 31	500	Limited quota licenses; any antelope
	6	Oct. 5	Oct. 31	200	Limited quota licenses; doe or fawn
31	1	Sep. 25	Oct. 31	350	Limited quota licenses; any antelope
	6	Sep. 25	Oct. 31	200	Limited quota licenses; doe or fawn
32	1	Sep. 25	Oct. 31	400	Limited quota licenses; any antelope
	6	Sep. 25	Oct. 31	400	Limited quota licenses; doe or fawn
41	1	Sep. 25	Oct. 31	50	Limited quota licenses; any antelope
	6	Sep. 25	Oct. 31	50	Limited quota licenses; doe or fawn
42	1	Sep. 25	Oct. 31	550	Limited quota licenses; any antelope
	6	Sep. 25	Oct. 31	200	Limited quota licenses; doe or fawn
46	1	Sep. 25	Oct. 31	150	Limited quota licenses; any antelope
	2	Oct. 5	Oct. 31	250	Limited quota licenses; any antelope
	6	Sep. 25	Oct. 31	250	Limited quota licenses; doe or fawn
	7	Oct. 5	Oct. 31	300	Limited quota licenses; doe or fawn
47	1	Sep. 25	Oct. 31	700	Limited quota licenses; any antelope
	2	Oct. 5	Oct. 31	250	Limited quota licenses; any antelope
	6	Sep. 25	Oct. 31	550	Limited quota licenses; doe or fawn
	7	Oct. 5	Oct. 31	250	Limited quota licenses; doe or fawn
48	1	Sep. 25	Oct. 31	200	Limited quota licenses; any antelope
	2	Oct. 5	Oct. 31	200	Limited quota licenses; any antelope
	6	Sep. 25	Oct. 31	300	Limited quota licenses; doe or fawn
	7	Oct. 5	Oct. 31	300	Limited quota licenses; doe or fawn
Archery					
30,31,32,41, 42,46,47,48		Aug. 15			Refer to Section 3 of this Chapter

Area	Type	Change from 2012
30	1	-300
	6	-300
31	6	-200
42	1	-100
	6	-50
46	1	-75
	2	+25
	6	-50
	7	+50
47	1	-200
	2	-50
	6	-100
	7	-100
48	1	-100
	6	-75
	7	-75
Herd Totals	**1 & 2**	**-800**
	6 & 7	**-900**
	TOTAL	**-1,700**

Management Evaluation

Current Postseason Population Management Objective: 60,000
Management Strategy: Recreational
2012 Postseason Population Estimate: ~ 37,400
2013 Proposed Postseason Population Estimate: ~ 37,700

The management objective for the Medicine Bow Pronghorn Herd Unit is a postseason population objective of 60,000 pronghorn. The management strategy is recreational management which maintains for 20 to 59 bucks per 100 does. The objective and management strategy were last revised in 2001 and is scheduled to be reviewed in 2014.

Herd Unit Issues

The Medicine Bow Herd encompasses Hunt Areas 30, 31, 32, 41, 42, 46, 47 and 48. These Hunt Areas vary between predominantly public land and exclusively private land. Large scale wind farms and coal mining exists within this herd and may be negatively impacting productivity. Habitat conditions in the Medicine Bow Herd have warranted a reduction in population size below objective level. Our harvest strategy has been to reduce the population to a level that will allow range conditions improve. The 2012 post-season population estimate was about 37,400 with the population trending near 40,000 since 2009. The last line transect was conducted in 2012 and estimates the population at about 57,000. We believe this is an inaccurate estimate due to large errors of observablity caused by extreme drought which effected pronghorn distribution.

Weather
Weather during 2012 and into 2013 was extremely dry and warmer than normal. The Palmer Drought Severity Index ranks drought conditions in SE Wyoming as severe and predicts conditions will continue through spring of 2013. The spring and summer of 2012 was one of the driest on record and we anticipated poor fawn survival; however fawn ratios increased from the previous year of 59:100 to 63:100. The 2012 winter was mild resulting in good over winter survival. For specific weather information please refer to the following link: http://www.ncdc.noaa.gov/.

Habitat
Habitat transects were not read in 2013 due to recent changes in staff. Current transects are not always located in the best locations due to terrain or ownership status. We plan to revaluate each transect in the Laramie region this spring to improve the quality of data being gathered. The spring and summer of 2012 were severe and little to no new growth was documented by field staff. Most available forge appeared to be growth from 2011. The reader is referred to the Strategic Habitat Plan Annual Report for further background information on shrub transects.

Field Data
Buck ratios declined to 48:100 does which is in the middle of recommended ratios for recreational management but low for this herd. With the dry summer and little to no vegetation growth fawn ratios were anticipated to be low but they increased from the previous year of 59 fawns: 100 does to 63 fawns: 100 does. Hunter success for all active licenses types declined to 77% from the long term average of 84% but days to harvest decreased to 3 days which is a 5 year low. Field personnel noted hunters had a difficult time location pronghorn this past season. However the Hunter Satisfaction Survey showed that 79% of hunters were either satisfied or very satisfied with their hunt with 9.8% remaining neutral. During field checks this hunting season 389 pronghorn were aged by analyzing the front incisors. Over 50% of all males and females harvested were over 3 years old which is down from 2011 when 72% of males and 63% of females were over 3 years old. Juveniles and yearlings accounted for 30% of pronghorn checked which is up from 22% in 2011.

Harvest Data
The severe drought conditions in this herd did not affect productivity in the short term but may have negative long term effects if conditions do not improve. The dry conditions did cause pronghorn to be less evenly spread across the landscape making it difficult for hunters to locate them. We have also issued a liberal number of licenses for the past 6 years to decrease the population and there are noticeably fewer pronghorn on the landscape which may have contributed to the poor hunter success. With the reduction in licenses hunter success should improve and we will still be able to maintain the population below objective.

Population
The spreadsheet model for this herd indicates the population is declining with a post hunt population of 37,400. This estimate was derived using the time-Specific juvenile and Constant Adult Survival model which had a SCI score of 208 and a best fit score of 155. The model is of good quality and predicted end of year population trends align well with past line transect

estimates and is comparable with what field personnel have noted from landowner and hunter comments.

Management Summary

If we attain the projected harvest of 4,000 with average fawn recruitment of 64 fawns: 100 does the population should remain stable and allow for range conditions to improve. We predict a 2013 post season population of about 37,700. The reduction in licenses in 2012 helped to prevent the population from decreasing further but did not fully address the decline in hunter success. We have reduced the herd for habitat concerns and are reducing license numbers to stabilize the population at approximately 40,000 until conditions improve. Epizootic Hemorrhagic Disease was documented in the portion of the herd in Hunt Area 30 requiring a reduction of 600 licenses to address the loss (-300 type1 and -300 type 6). Hunt Area 46 landowners recommended status quo. To maintain the number of licenses in Hunt Area 46 and increase hunter success we moved licenses from the type 1s and type 6s to the type 2s and 7s which are mostly purchased by nonresidents and maintain a higher harvest success. Other recommended reductions are to address hunter success, drought concerns and maintain the current population.

INPUT	
Species:	Pronghorn
Biologist:	Lee Knox
Herd Unit & No.:	PR525
Model date:	02/05/13

☐ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	290	299	☐ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	298	307	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	125	208	☑ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	9815	10097	20277	**40188**	9255	6057	15922	**31233**	7029	16219	**23248**				45000
1994	9077	6888	15895	**31860**	8768	4342	13863	**26973**	5760	14700	**20460**				45000
1995	7480	5644	14406	**27530**	7332	3714	13350	**24396**	5794	14873	**20666**				45000
1996	10358	5678	14575	**30611**	10278	3948	14037	**28263**	8255	17785	**26039**				45000
1997	9670	8090	17429	**35189**	9556	6034	16569	**32159**	9843	19789	**29632**	37921			45000
1998	12446	9646	19393	**41486**	12406	7773	18914	**39092**	9683	20213	**29896**				45000
1999	11843	9490	19808	**41141**	11739	7284	19085	**38107**	8980	20133	**29113**	20726	4656		45000
2000	13027	8800	19730	**41557**	12903	5946	18797	**37645**	9316	21489	**30805**				60000
2001	12916	9130	21059	**43106**	12743	6596	20081	**39420**	9979	22714	**32693**				60000
2002	13826	9780	22259	**45865**	13587	6832	20915	**41334**	12356	25653	**38010**	39551	6829		60000
2003	16535	12109	25140	**53784**	16209	8678	23017	**47905**	15240	28750	**43989**				60000
2004	17652	14935	28175	**60762**	17184	11225	25946	**54355**	13532	27415	**40947**				60000
2005	17719	13262	26867	**57847**	17422	9500	24191	**51113**	12017	25838	**37854**				60000
2006	15771	11776	25321	**52868**	15389	7816	22117	**45322**	14009	27436	**41445**				60000
2007	18810	13729	26887	**59426**	18172	9749	23592	**51514**	12280	25273	**37553**				60000
2008	16079	12034	24768	**52881**	15538	8136	21360	**45034**	10272	22670	**32942**				60000
2009	14512	10066	22216	**46794**	14040	5986	18880	**38906**	10528	22639	**33167**				60000
2010	13065	10317	22186	**45568**	12557	6158	18371	**37086**	11136	22577	**33713**				60000
2011	13004	10913	22125	**46043**	12558	7117	18405	**38080**	10093	21191	**31284**	57089			60000
2012	13057	9891	20767	**43716**	12636	6632	18118	**37385**	9903	20529	**30433**				60000
2013	12519	9705	20119	**42343**	12299	7271	18139	**37709**							60000
2014															
2015															
2016															
2017															
2018															
2019															
2020															
2021															
2022															
2023															
2024															
2025															

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.40			0.92		
1994	0.45			0.92		
1995	0.67			0.92		
1996	0.90			0.92		
1997	0.90			0.92		
1998	0.41			0.92		
1999	0.40			0.92		
2000	0.61			0.92		
2001	0.63			0.92		
2002	0.90			0.92		
2003	0.90			0.92	0.77	0.05
2004	0.40			0.92	0.94	0.03
2005	0.40			0.92	0.73	0.06
2006	0.90			0.92		
2007	0.40			0.92		
2008	0.40			0.92		
2009	0.75			0.92		
2010	0.90			0.92		
2011	0.49			0.92		
2012	0.47			0.92		
2013	0.40			0.92		
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:	Optim cells
Adult Survival =	0.916
Initial Total Male Pop/10,000 =	1.010
Initial Female Pop/10,000 =	2.028

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

	Classification Counts						Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		48.40	1.07	49.80	50.67	1.11	3673	3959	509	8141	40.0	21.5
1994		57.11	1.36	43.34	42.73	1.12	2315	1847	281	4443	37.0	12.8
1995		51.92	1.17	39.18	39.18	0.97	1755	960	134	2849	34.2	7.3
1996		71.07	2.02	38.96	38.02	1.32	1573	489	73	2135	30.5	3.7
1997		55.48	1.58	46.42	46.32	1.40	1869	782	104	2755	25.4	4.9
1998		64.18	1.60	49.74	50.94	1.36	1703	436	37	2176	19.4	2.5
1999		59.79	1.70	47.91	49.44	1.50	2005	658	95	2758	23.2	3.7
2000		66.02	1.81	44.60	43.97	1.37	2595	849	112	3556	32.4	4.7
2001		61.33	2.04	43.35	43.35	1.62	2304	889	158	3351	27.8	4.6
2002		62.11	2.01	43.94	42.39	1.56	2680	1222	217	4119	30.1	6.0
2003		65.77	2.11	48.17	43.45	1.59	3119	1930	296	5345	28.3	8.4
2004		62.65	1.96	53.01	64.92	2.01	3373	2026	425	5824	24.8	7.9
2005		65.95	2.19	49.36	51.36	1.85	3420	2432	270	6122	28.4	10.0
2006		62.28	2.18	46.51	43.07	1.70	3600	2913	347	6860	33.6	12.7
2007		69.96	2.12	51.06	52.36	1.74	3618	2995	580	7193	29.0	12.3
2008		64.92	2.12	48.59	55.94	1.91	3544	3098	492	7134	32.4	13.8
2009		65.32	1.81	45.31	42.28	1.35	3709	3033	429	7171	40.5	15.0
2010		58.89	1.75	46.50	41.86	1.39	3781	3468	462	7711	40.3	17.2
2011		58.78	2.05	49.32	58.19	2.04	3451	3382	406	7239	34.8	16.8
2012		62.87	2.24	47.63	47.63	1.85			2409	5755	33.0	12.8
2013		62.23	1.97	48.24	48.24	1.66			1800	4213	25.1	9.8
2014												
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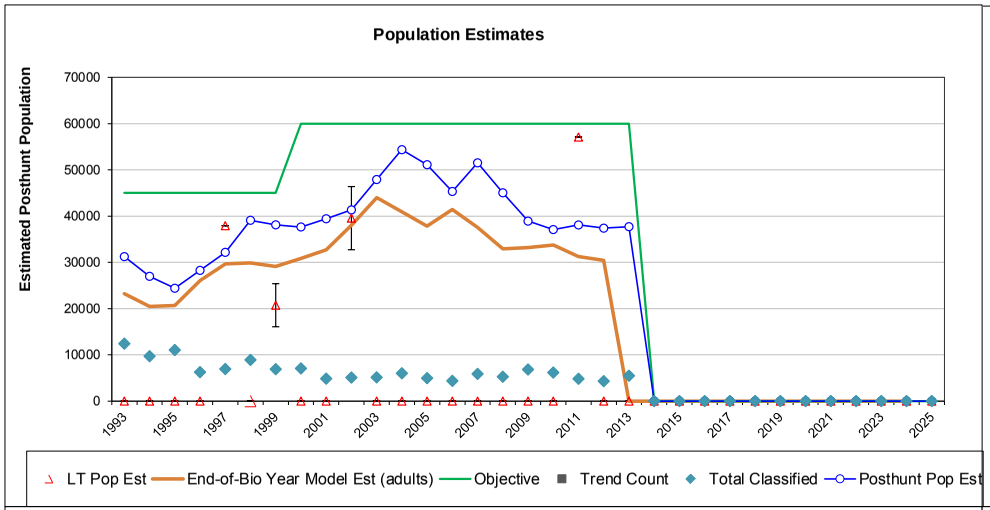
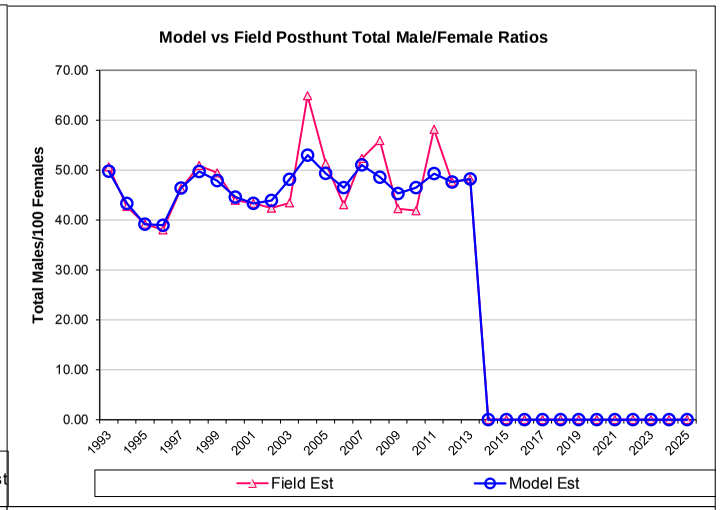
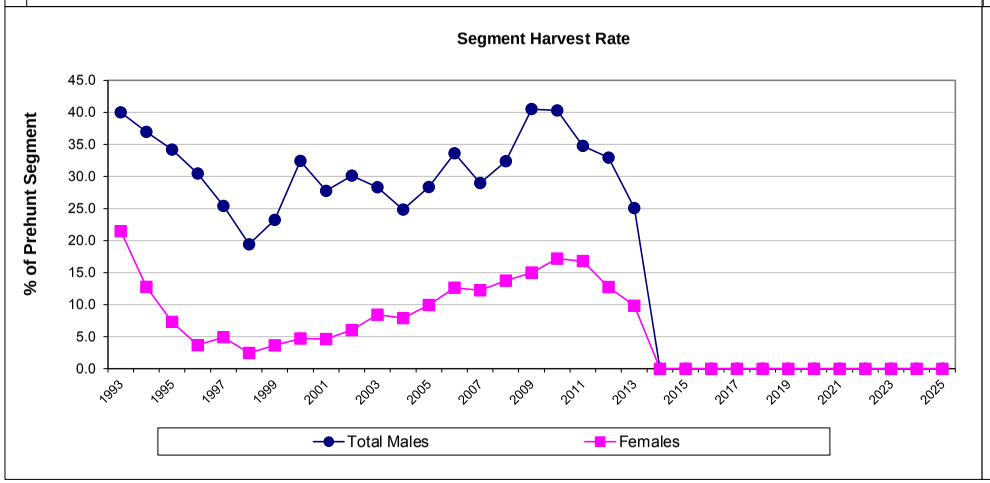
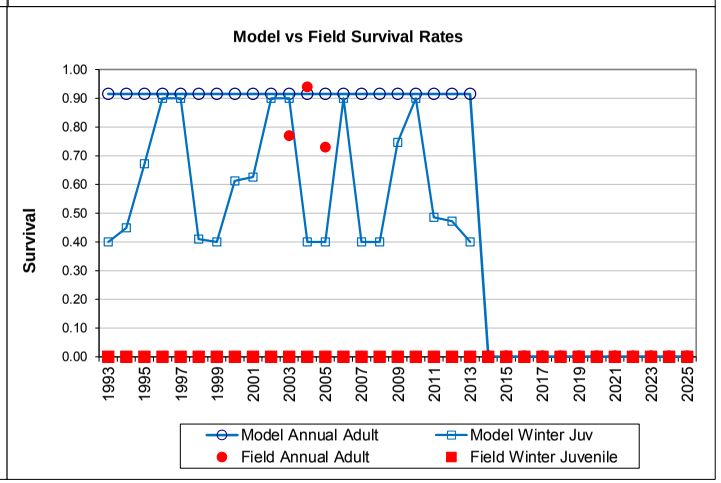
FIGURES





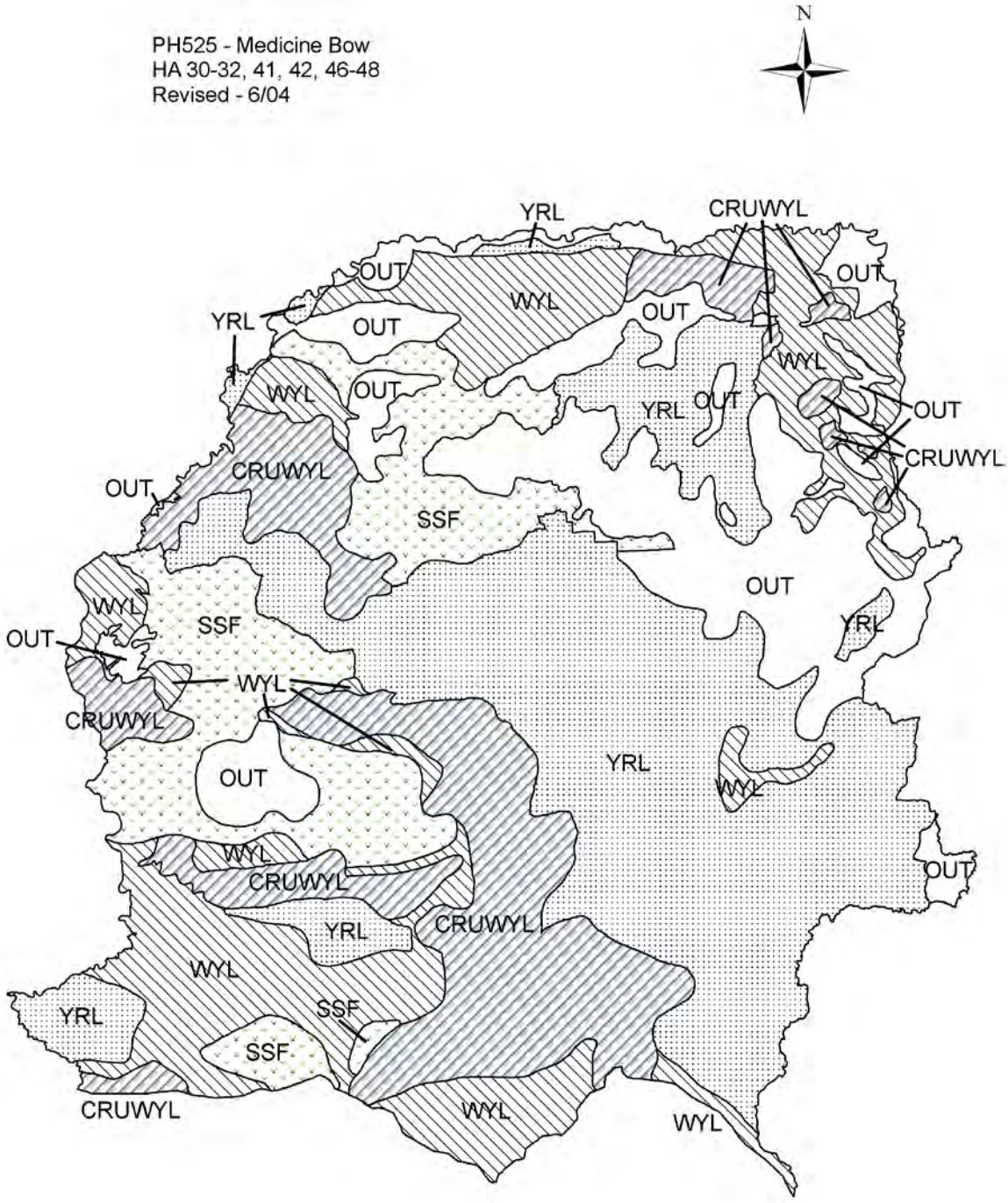




Comments:

END

PH525 - Medicine Bow
HA 30-32, 41, 42, 46-48
Revised - 6/04



2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR526 - COOPER LAKE

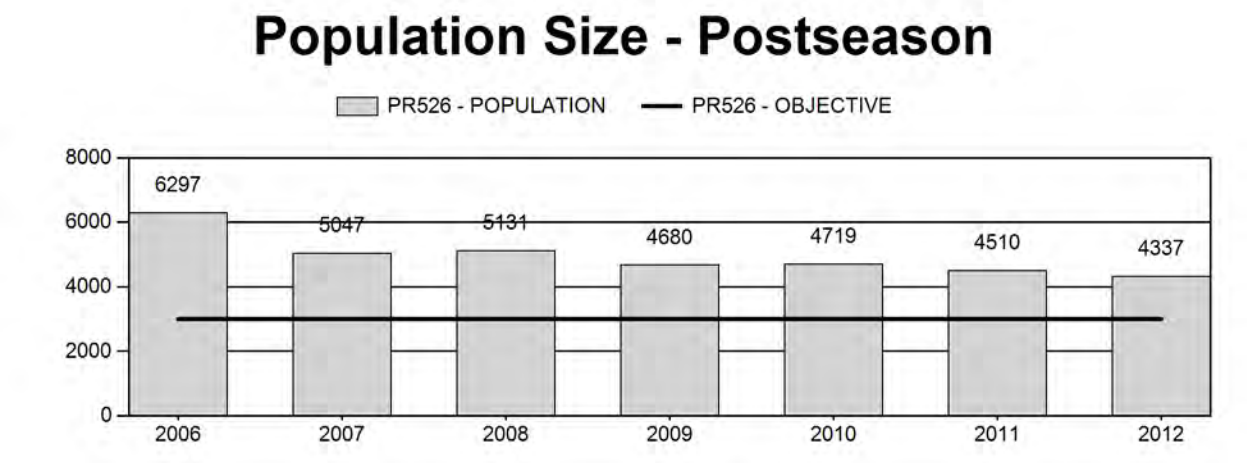
HUNT AREAS: 43
PREPARED BY: LEE KNOX

	2007 - 2011 Average	2012	2013 Proposed
Population:	4,817	4,337	3,840
Harvest:	641	730	800
Hunters:	709	758	850
Hunter Success:	90%	96%	94%
Active Licenses:	763	839	890
Active License Percent:	84%	87%	90%
Recreation Days:	2,150	2,446	2,200
Days Per Animal:	3.4	3.4	2.8
Males per 100 Females	39	41	
Juveniles per 100 Females	73	80	

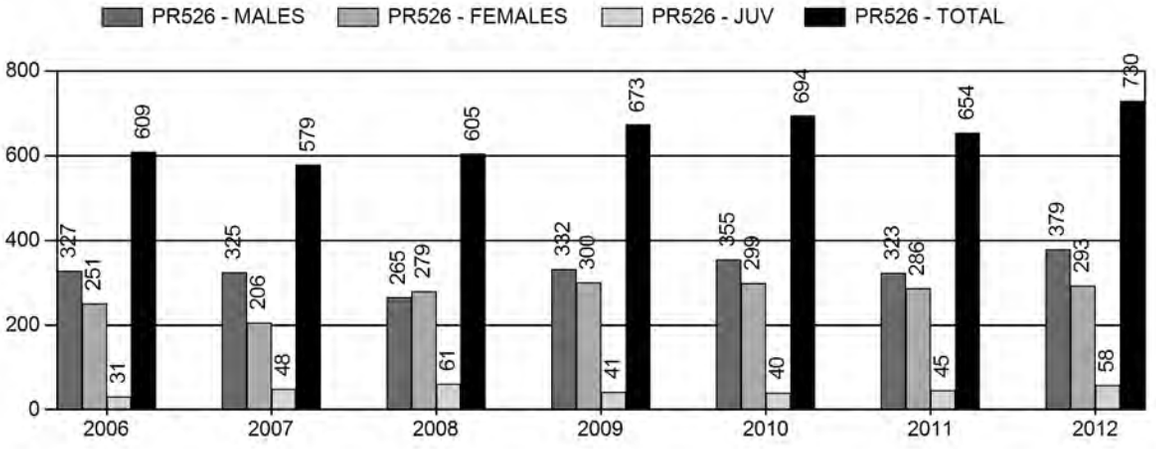
Population Objective:	3,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	45%
Number of years population has been + or - objective in recent trend:	20
Model Date:	2/13/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

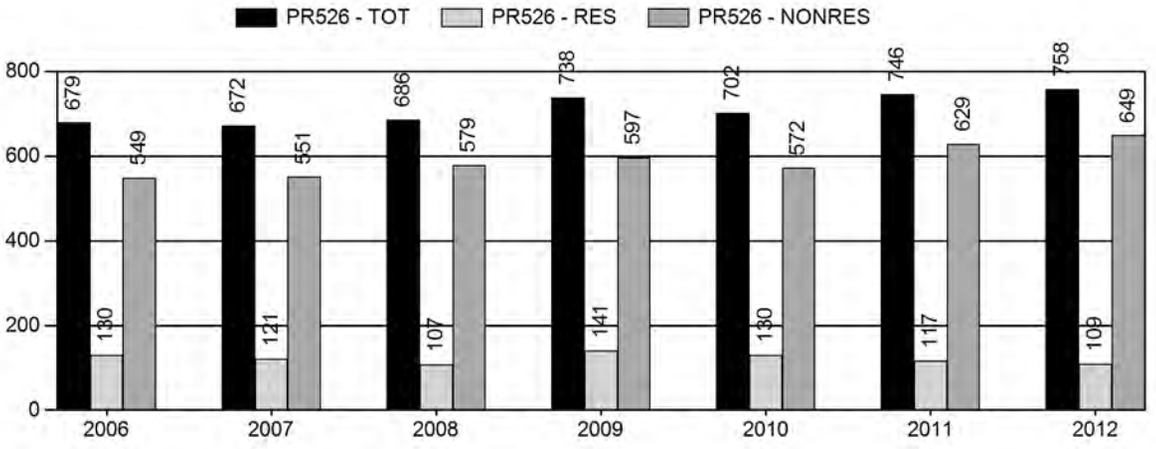
	JCR Year	Proposed
Females ≥ 1 year old:	8.6%	9%
Males ≥ 1 year old:	14.5%	15%
Juveniles (< 1 year old):	1.7%	2%
Total:	8.00%	8%
Proposed change in post-season population:	5.7%	6%



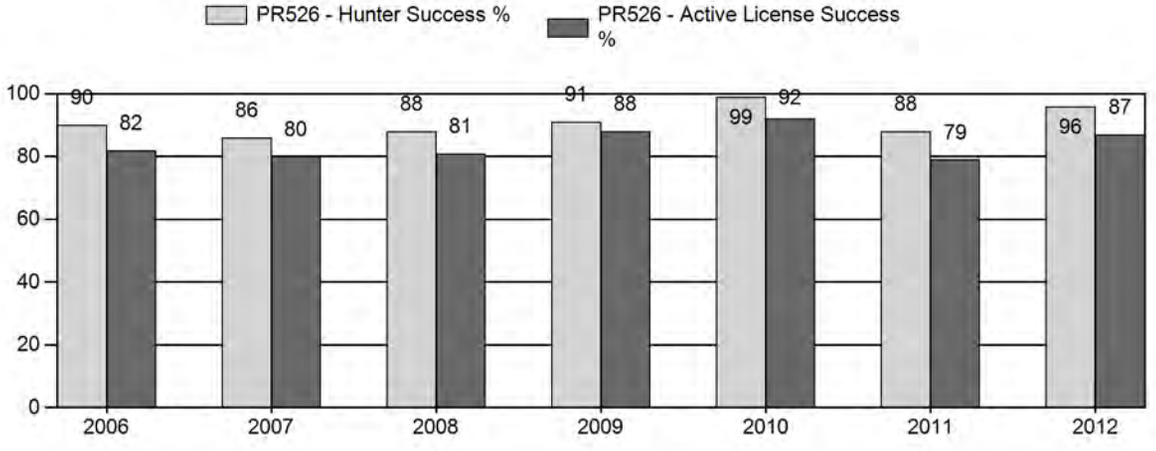
Harvest



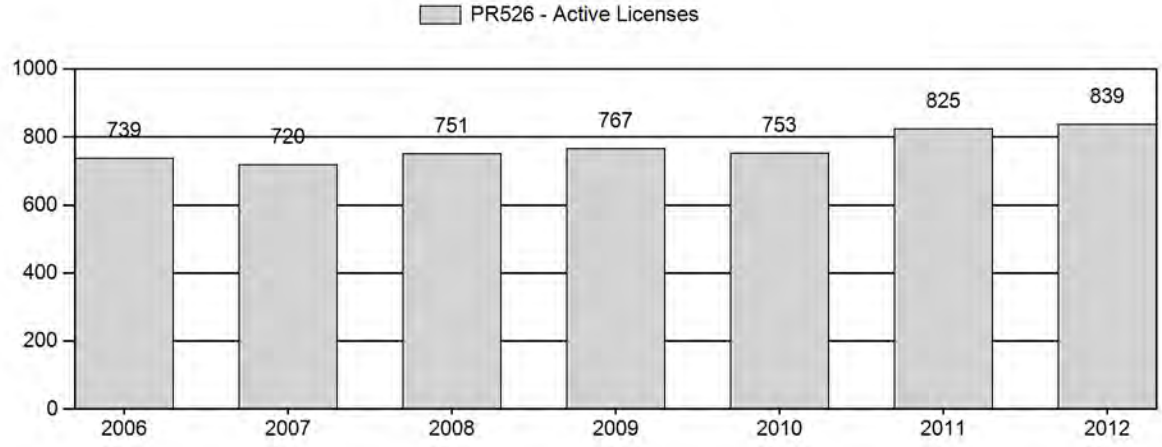
Number of Hunters



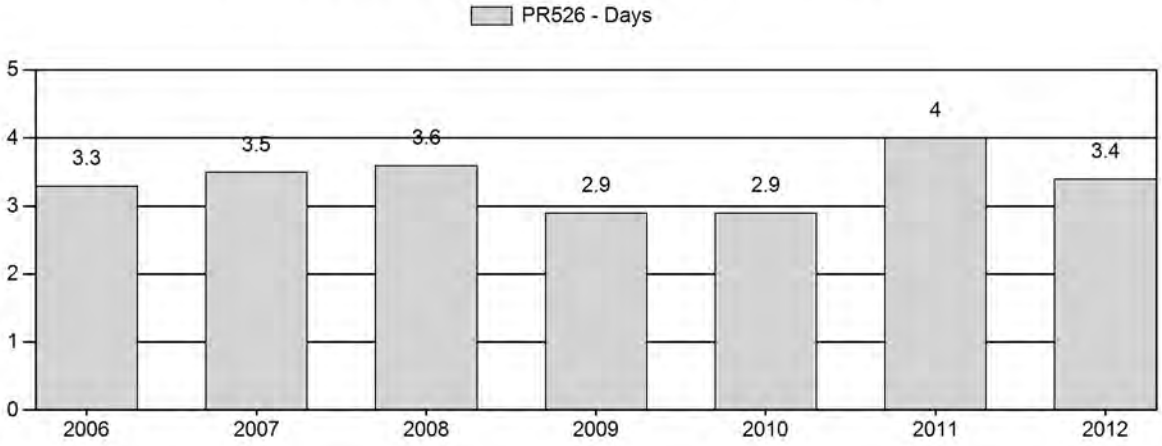
Harvest Success



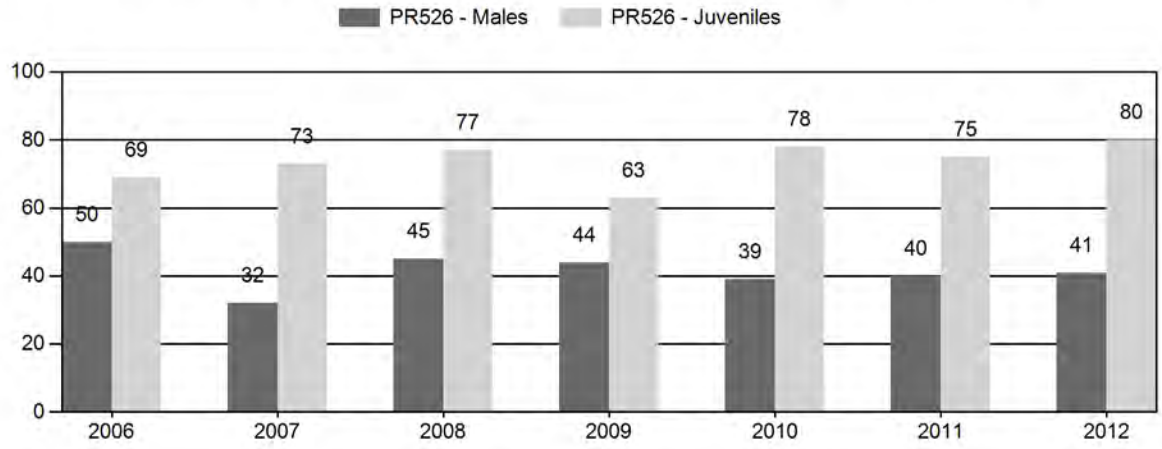
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2006 - 2012 Preseason Classification Summary

for Pronghorn Herd PR526 - COOPER LAKE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2006	6,965	228	263	491	23%	988	46%	685	32%	2,164	2,048	23	27	50	± 4	69	± 5	46
2007	5,684	84	163	247	16%	768	49%	559	36%	1,574	1,989	11	21	32	± 3	73	± 6	55
2008	5,797	39	71	110	20%	246	45%	189	35%	545	2,300	16	29	45	± 8	77	± 12	53
2009	5,420	87	146	233	21%	525	48%	332	30%	1,090	1,780	17	28	44	± 5	63	± 7	44
2010	5,482	89	147	236	18%	599	46%	468	36%	1,303	2,318	15	25	39	± 4	78	± 7	56
2011	5,230	56	162	218	19%	544	47%	406	35%	1,168	2,231	10	30	40	± 5	75	± 7	53
2012	5,154	33	52	85	18%	209	45%	167	36%	461	2,064	16	25	41	± 8	80	± 13	57

2013 HUNTING SEASONS
COOPER LAKE PRONGHORN(PR526)

Hunt Area	Type	Dates Season Opens	Closes	Quota	Limitations
43	1	Sep. 15	Oct. 14	450	Limited quota licenses; any antelope
	6	Sep. 15	Oct. 14	450	Limited quota licenses; doe or fawn
Archery					
43		Aug. 15	Sep. 14		Refer to Section 3 of this Chapter

Management Evaluation
Current Postseason Population Management Objective: 3,000
Management Strategy: Recreational
2012 Postseason Population Estimate: ~4300
2013 Proposed Postseason Population Estimate: ~ 3800

The management objective for the Iron Mountain Pronghorn Herd Unit is a post-season population objective of 3,000 pronghorn. The management strategy is recreational management with a buck ratio of 20 to 59 per 100 does. The Objective and management strategy were last revised in 2003 and will be reevaluated in 2013.

Herd Unit Issues
The 2012 post-season population estimate was about 4300 with the population trending slowly downward since 2008. The last line transect was conducted in 2006 and estimated the population at 5,400 with a standard error of 570. This herd is predominately private land with increasing urban sprawl near Laramie and a large wind farm in the western portion of the herd. Limited public access has hindered efforts to decrease this herd. Currently most public hunting is limited to the Diamond Lake and Laramie River Hunter Management Areas which now encompass half of the herd unit and have allowed us to slowly decrease the herd towards the objective.

Weather
Weather during 2012 and into 2013 was extremely dry and warmer than normal. The Palmer Drought Severity Index ranked drought conditions in SE Wyoming as severe. The spring and summer of 2012 was one of the driest on record and we anticipated poor fawn survival. However due to the geographical location of this herd, the Laramie River and Rock River drainages provide some refuge during drought years. Fawn ratios increased from 74fawns: 100 does in 2011 to 80 fawns: 100 does in 2012. The winter of 2012-2013 was mild resulting in good over winter survival. For specific weather information please refer to the following link: http://www.ncdc.noaa.gov/.

Habitat
Due to recent changes in staff habitat transects were not read in 2013. Current transects have not always been located in the best locations due to terrain or ownership status. We plan to revaluate each transect this spring to improve the quality of data being gathered. The spring and summer of 2012 were severe and little to no new growth was documented by field staff. Most available forge appeared to be growth from 2011. The reader is referred to the Strategic Habitat Plan Annual Report for further background information on shrub transects.

Field Data
Classification samples were much lower than the desired sample objective. Pronghorn were difficult to find due to drought conditions displacing them to less traditional areas. Fawns ratios increased to 80 fawns: 100 does which is higher than expected. Bucks ratios have remained in the low 40s which is in the middle of the target range for recreational management. Hunter success went up for both licenses types and days per harvest decreased even though hunters and field personal reported seeing fewer pronghorn. The hunter satisfaction survey showed 94% of hunters were either satisfied or very satisfied with their hunt which was unexpected based on complaints received by field staff.

Harvest Data
We issue 900 licenses which do not all sell in the resident draw but are picked up after the draw by non-residents who account for over 80% of the licenses. We are over objective but we are at the threshold for maximum harvest since we are limited by hunter densities on the HMAs which encompass half of the Herd Unit.

Population
The Constant Juvenile- Constant Adult Mortality Rate (CJCA) spreadsheet model was chosen to use for the post season population estimate of this herd. This is a good model. The model chosen had the lowest AIC of all three models and the end of year population estimate trends well with the past LTs. The model is predicting a downward trend in the population which has also been noted by landowners and field personnel.

Management Summary
With the current amount of public access and a predicted harvest of 800 pronghorn the population will continue trending downward towards the management objective. We predict a 2013 post-season population of about 3,800. The Traditional season has always opened on the 3rd Saturday of September. To standardize opening dates the season will remain September 15th through October14th to provide ample opportunity and distribute hunters over time on the HMAs. Harvest in this herd largely relies on 2 large HMAs in the hunt area which has been instrumental in driving this population towards objective. With the current number of licenses issued we will gradually reach the objective with a smaller chance of over harvesting.

INPUT	
Species:	Pronghorn
Biologist:	Bob Lanka
Herd Unit & No.:	Cheyenne Office
Model date:	07/19/12

☐ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	133	142	☑ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	256	264	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	86	180	☐ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	1129	555	2116	**3800**	1085	396	1926	**3407**	596	2077	**2674**				3000
1994	1154	584	2036	**3775**	1115	426	1898	**3439**	633	2061	**2694**				3000
1995	898	620	2020	**3538**	887	492	1989	**3367**	657	2114	**2771**	2486	325		3000
1996	1763	644	2072	**4479**	1752	528	2013	**4293**	879	2322	**3201**				3000
1997	2040	861	2276	**5177**	2027	718	2187	**4932**	1121	2547	**3668**				3000
1998	1743	1098	2496	**5337**	1730	951	2375	**5056**	1282	2664	**3946**	5496	1706		3000
1999	1990	1257	2611	**5857**	1952	1050	2459	**5461**	1416	2785	**4200**	4234	399		3000
2000	1818	1387	2729	**5935**	1789	1111	2575	**5475**	1439	2864	**4303**				3000
2001	2071	1410	2807	**6288**	2039	1102	2621	**5762**	1482	2960	**4441**				3000
2002	1691	1452	2901	**6043**	1618	1133	2696	**5447**	1408	2930	**4338**	4636	548		3000
2003	1677	1380	2871	**5929**	1625	1040	2627	**5292**	1325	2868	**4192**				3000
2004	1494	1298	2810	**5602**	1450	957	2519	**4925**	1209	2725	**3934**				3000
2005	2131	1185	2671	**5987**	1993	819	2442	**5254**	1163	2743	**3906**				3000
2006	1864	1140	2689	**5692**	1830	780	2413	**5022**	1121	2708	**3829**	5401	569		3000
2007	1932	1099	2654	**5684**	1879	741	2427	**5047**	1088	2730	**3818**				3000
2008	2055	1067	2675	**5797**	1988	775	2368	**5131**	1144	2687	**3832**				3000
2009	1665	1121	2634	**5420**	1620	756	2304	**4680**	1049	2551	**3601**				3000
2010	1954	1028	2500	**5482**	1910	638	2171	**4719**	996	2486	**3481**				3000
2011	1818	976	2436	**5230**	1768	621	2121	**4510**	898	2424	**3322**				3000
2012	1898	880	2376	**5154**	1832	450	2055	**4337**	812	2318	**3131**				3000
2013	1652	796	2272	**4720**	1597	356	1887	**3840**							3000
2014															
2015															
2016															
2017															
2018															
2019															
2020															
2021															
2022															
2023															
2024															
2025															

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.42			0.95		
1994	0.42			0.95		
1995	0.42			0.95		
1996	0.42			0.95		
1997	0.42			0.95		
1998	0.42			0.95		
1999	0.42			0.95		
2000	0.42			0.95		
2001	0.42			0.95		
2002	0.42			0.95		
2003	0.42			0.95		
2004	0.42			0.95		
2005	0.42			0.95		
2006	0.42			0.95		
2007	0.42			0.95		
2008	0.42			0.95		
2009	0.42			0.95		
2010	0.42			0.95		
2011	0.42			0.95		
2012	0.42			0.95		
2013	0.42			0.95		
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:	Optim cells
Juvenile Survival =	0.421
Adult Survival =	0.950
Initial Total Male Pop/10,000 =	0.055
Initial Female Pop/10,000 =	0.212

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

	Classification Counts						Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		53.34	3.24	26.22	28.15	2.15	144	173	40	357	28.5	9.0
1994		56.71	4.57	28.71	35.29	3.35	144	125	36	305	27.1	6.8
1995		44.44	3.51	30.71	31.03	2.79	117	28	10	155	20.7	1.5
1996		85.08	7.07	31.09	49.21	4.83	106	53	10	169	18.1	2.8
1997		89.65	6.32	37.84	41.41	3.71	130	81	12	223	16.6	3.9
1998		69.83	4.29	44.00	45.88	3.23	134	110	12	256	13.4	4.8
1999		76.21	4.73	48.13	48.42	3.46	188	138	34	360	16.5	5.8
2000		66.63	3.56	50.84	61.83	3.38	251	140	27	418	19.9	5.6
2001		73.78	3.65	50.24	48.50	2.73	280	169	29	478	21.8	6.6
2002		58.29	3.38	50.05	33.79	2.37	290	186	66	542	22.0	7.1
2003		58.42	3.55	48.07	39.67	2.74	309	222	48	579	24.6	8.5
2004		53.15	3.08	46.20	38.34	2.49	310	265	40	615	26.3	10.4
2005		79.78	4.44	44.37	40.99	2.82	333	208	125	666	30.9	8.6
2006		69.33	3.45	42.39	49.70	2.74	327	251	31	609	31.6	10.3
2007		72.79	4.05	41.40	32.16	2.35	325	206	48	579	32.5	8.5
2008		76.83	7.43	39.87	44.72	5.13	265	279	61	605	27.3	11.5
2009		63.24	4.43	42.57	44.38	3.49	332	300	41	673	32.6	12.5
2010		78.13	4.82	41.12	39.40	3.03	355	299	40	694	38.0	13.2
2011		74.63	4.89	40.06	40.07	3.21	323	286	45	654	36.4	12.9
2012		79.90	8.29	37.04	40.67	5.23			292	743	48.9	13.5
2013		72.73	4.78	35.03	36.36	3.00			350	800	55.3	16.9
2014												
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2023												
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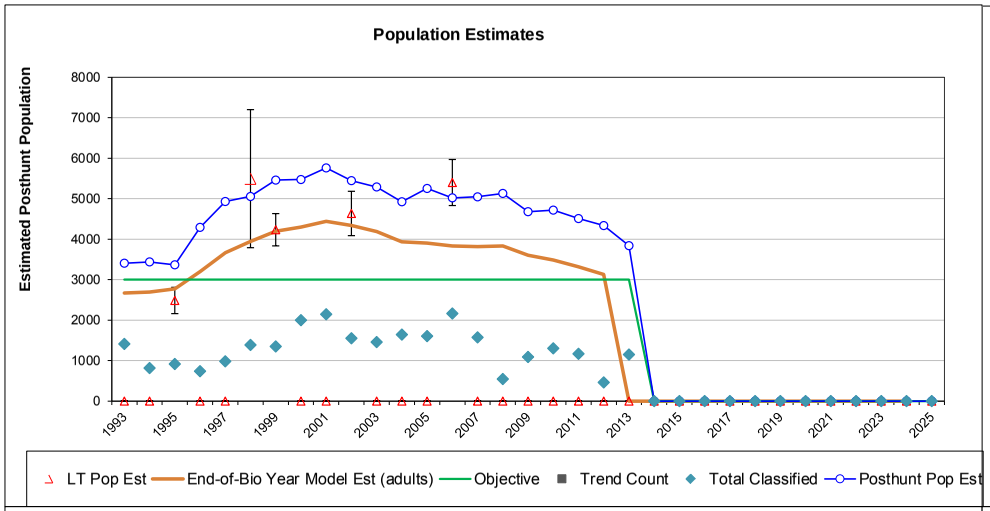
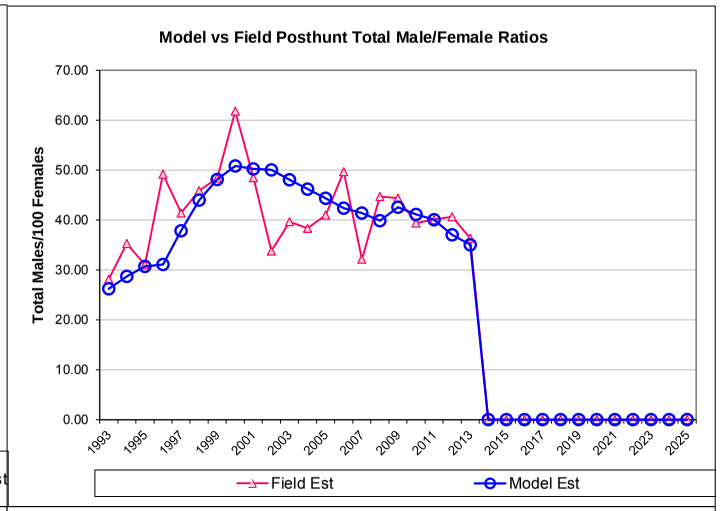
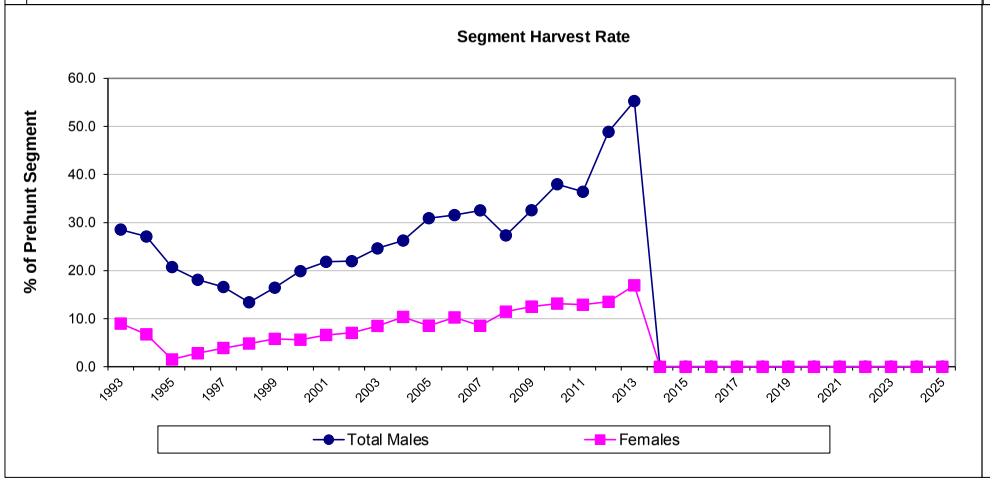
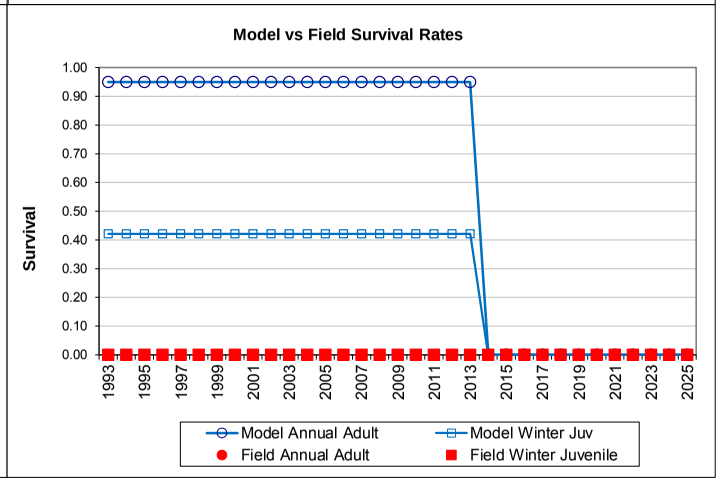
2025												

FIGURES









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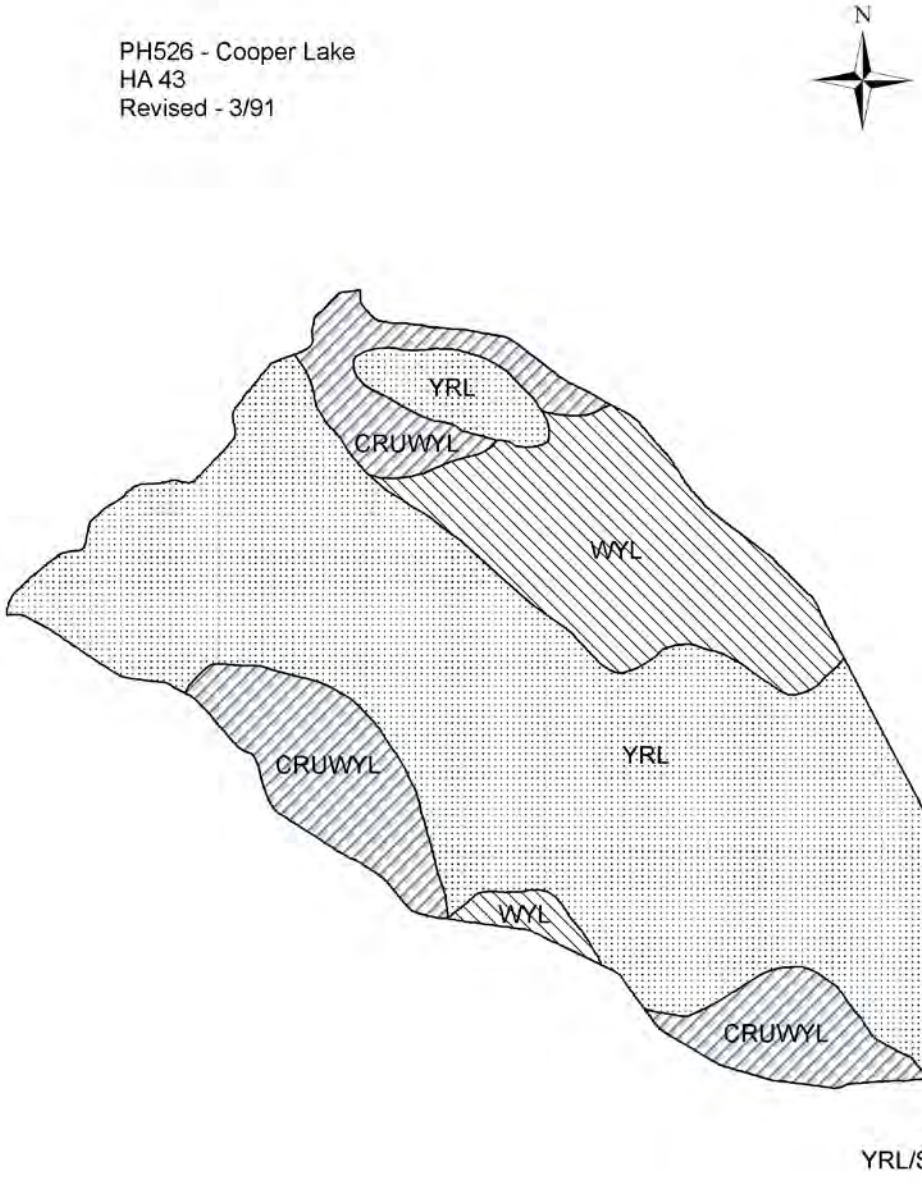
PH526 - Cooper Lake
HA 43
Revised - 3/91



2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR527 - CENTENNIAL

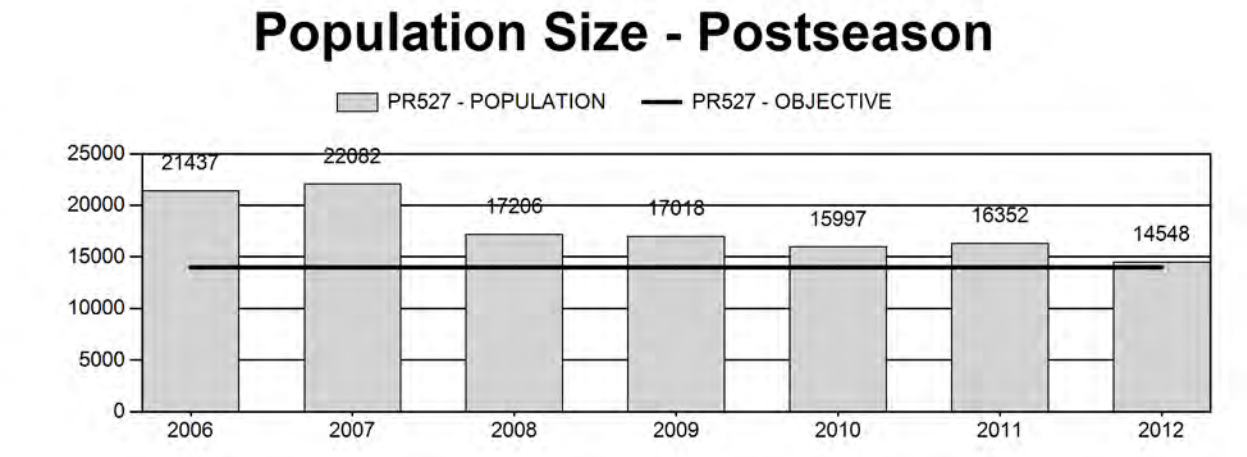
HUNT AREAS: 37, 44-45
PREPARED BY: LEE KNOX

	2007 - 2011 Average	2012	2013 Proposed
Population:	17,731	14,548	15,000
Harvest:	1,441	1,244	1,400
Hunters:	1,638	1,509	1,550
Hunter Success:	88%	82%	90%
Active Licenses:	1,836	1,636	1,650
Active License Percent:	78%	76%	85%
Recreation Days:	6,037	5,279	5,500
Days Per Animal:	4.2	4.2	3.9
Males per 100 Females	44	33	
Juveniles per 100 Females	73	66	

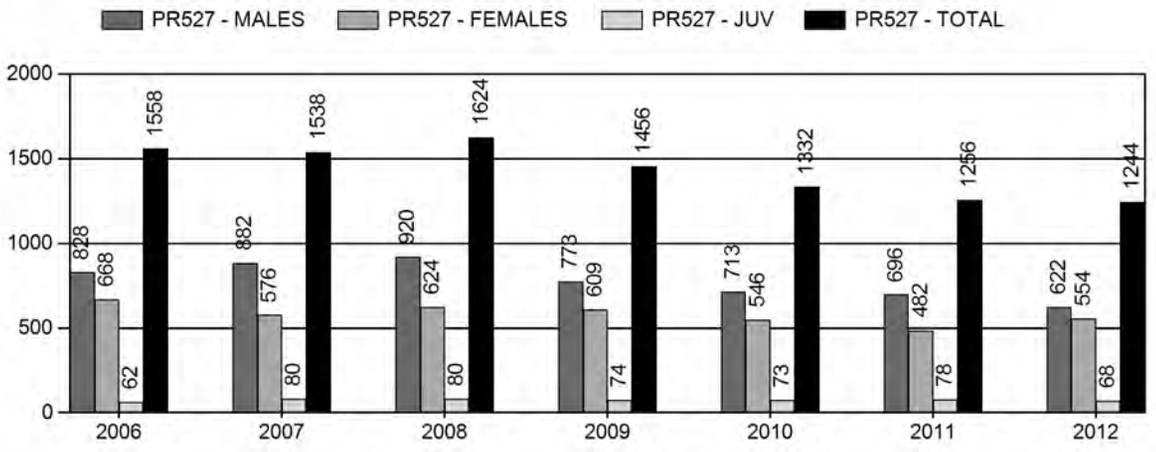
Population Objective:	14,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	4%
Number of years population has been + or - objective in recent trend:	20
Model Date:	2/26/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

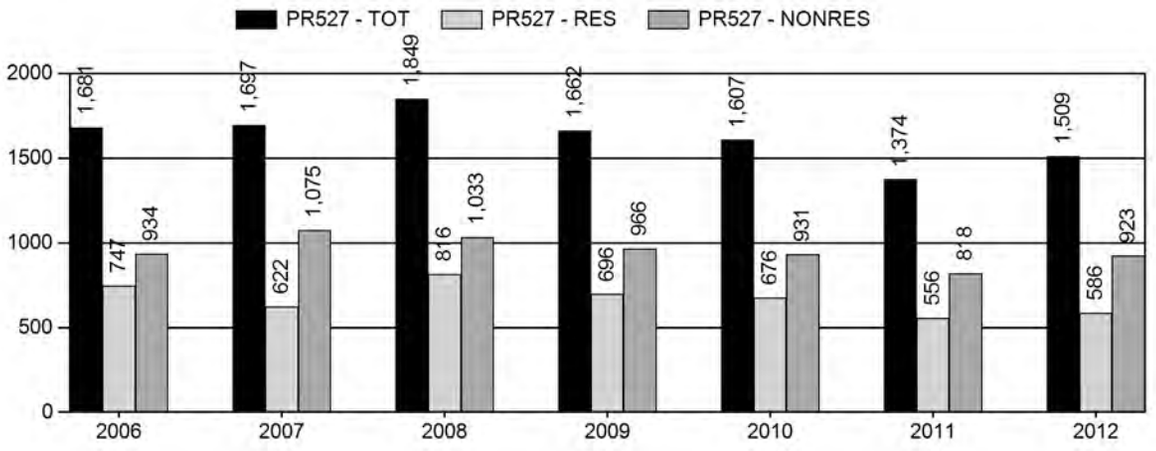
	JCR Year	Proposed
Females ≥ 1 year old:	4.3%	4.3%
Males ≥ 1 year old:	8.4%	8.4%
Juveniles (< 1 year old):	.8%	.8%
Total:	6.76%	6.76%
Proposed change in post-season population:	13.6%	13.6%



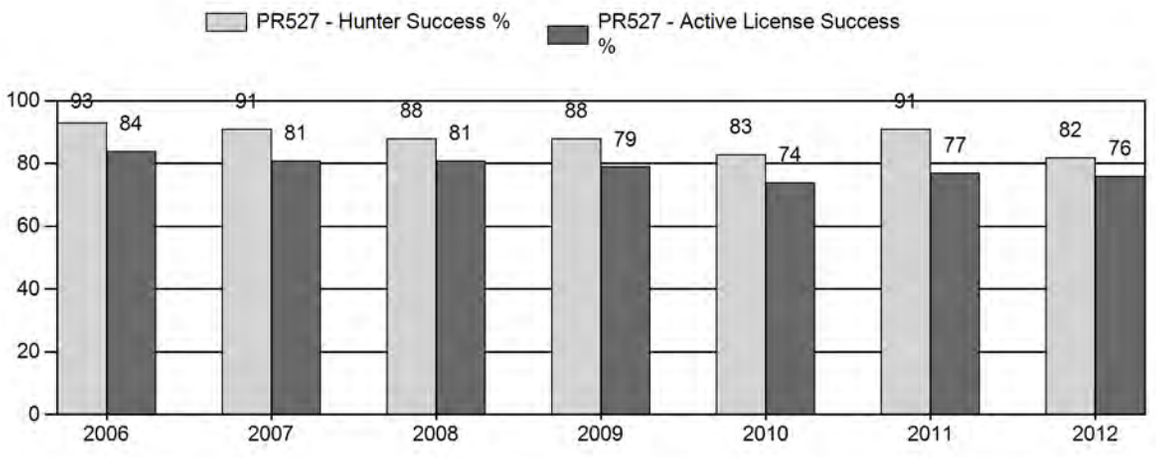
Harvest



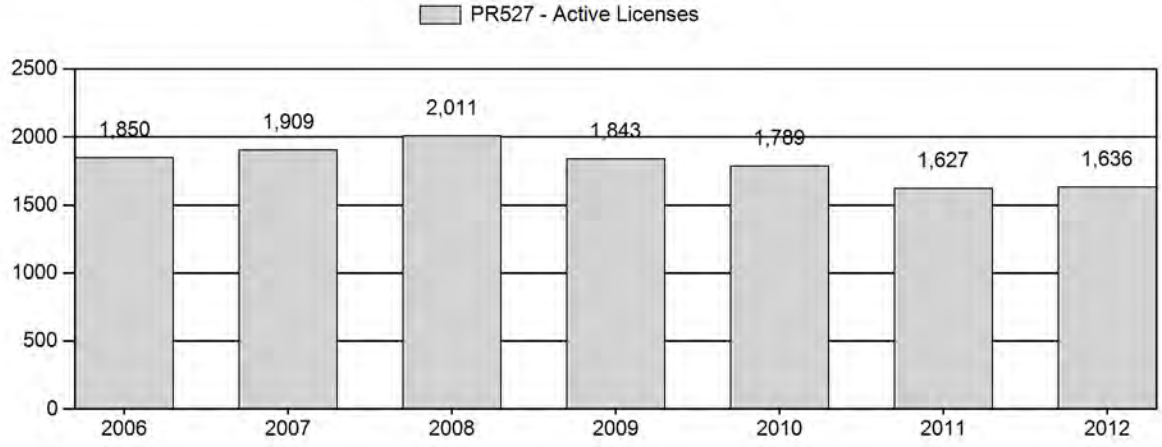
Number of Hunters



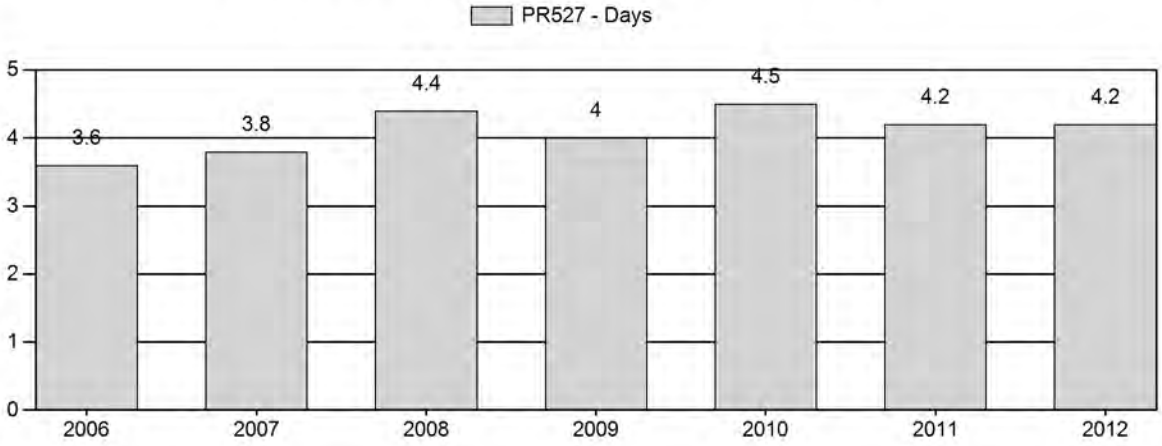
Harvest Success



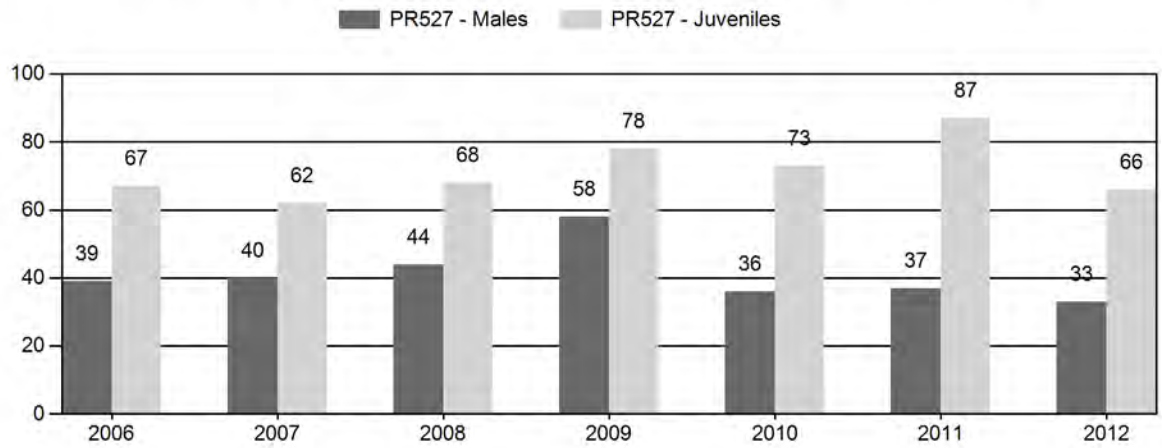
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2006 - 2012 Preseason Classification Summary

for Pronghorn Herd PR527 - CENTENNIAL

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2006	23,156	121	308	429	19%	1,088	48%	733	33%	2,250	2,254	11	28	39	± 3	67	± 5	48
2007	23,774	99	362	461	20%	1,147	49%	713	31%	2,321	1,990	9	32	40	± 3	62	± 5	44
2008	18,993	202	386	588	21%	1,343	47%	915	32%	2,846	2,381	15	29	44	± 3	68	± 4	47
2009	18,619	359	405	764	24%	1,326	42%	1,035	33%	3,125	3,122	27	31	58	± 4	78	± 5	50
2010	17,462	131	357	488	17%	1,337	48%	978	35%	2,803	2,589	10	27	36	± 3	73	± 5	54
2011	17,734	59	214	273	16%	741	45%	641	39%	1,655	2,886	8	29	37	± 4	87	± 7	63
2012	15,891	190	252	442	17%	1,326	50%	878	33%	2,646	2,016	14	19	33	± 3	66	± 4	50

2013 HUNTING SEASONS
CENTENNIAL PRONGHORN (PR527)

Hunt Area	Type	Dates of Seasons Opens	Closes	Quota	Limitations
37	1	Sep. 21	Oct. 14	275	Limited quota licenses; any antelope
	6	Sep. 21	Oct. 14	75	Limited quota licenses; doe or fawn valid in that portion of Area 37 east of the Harriman Road (Wyoming Highway 218, Laramie County Road 102)
	7	Sep. 21	Oct. 14	25	Limited quota licenses; doe or fawn valid in that portion of Area 37 west of the Harriman Road (Wyoming Highway 218, Laramie County Road 102)
44	1	Sep. 14	Sep. 30	200	Limited quota licenses; any antelope
	6	Sep. 14	Sep. 30	250	Limited quota licenses; doe or fawn
45	1	Sep. 14	Sep. 30	400	Limited quota licenses; any antelope
	6	Sep. 14	Sep. 30	500	Limited quota licenses; doe or fawn
		Oct. 1	Oct. 14		Unused Area 45 Type 1 and Type 6 licenses valid in that portion of Area 45 south of Wyoming Highway 130
Archery					
37		Aug. 15	Sep. 20 Sep. 13		Refer to Section 3 of this Chapter
44,45		Aug. 15			Refer to Section 3 of this Chapter

Area	Type	Change from 2012
44	1	-50
45	1	-100
Herd	**1**	**-150**

Management Evaluation

Current Postseason Population Management Objective: 14,000
Management Strategy: Recreational
2012 Postseason Population Estimate: ~ 16,000
2013 Postseason Population Estimate: ~ 16,000

The Management objective for the Centennial Pronghorn Herd Unit is a post-season population objective of 14,000. The management strategy is recreational management with a buck ratio of 20 to 59 per 100 does. The objective and management strategy were last revised in 2005 and are being reviewed in 2013.

Herd Unit Issues

The Centennial Pronghorn Herd Unit encompasses Hunt Areas 37, 44, and 45 which are predominately private land with little public access. The 2012 post-season population estimate was about 16,000 with the population trending slowly downward from 20,000 in 2006. The last line transect was conducted in 2007 and predicted the end of bio year population of 17,500. Harvest strategies are designed to maximize harvest where we can. Most of the harvest is limited to Hunter Management Areas were we have reached the threshold of hunter densities and an increase in license issuance would actually decrease harvest. This herd has experienced loss of habitat from subdivisions and wind farms are scheduled to be developed in Hunt Area 37 near the Colorado boarder which may also cause a loss of access to public land.

Weather

Weather during 2012 and into 2013 was extremely dry and warmer than normal. The Palmer Drought Severity Index ranks drought conditions in SE Wyoming as severe. The spring and summer of 2012 was one of the driest on record and fawn survival deceased from the long term average of 77 fawns: 100 does to 66 fawns: 100 does. The winter of 2012-2013 was mild resulting in good over winter survival. For specific weather information please refer to the following link: http://www.ncdc.noaa.gov/.

Habitat

Due to recent changes in staff habitat transects were not read in 2013. Current transects have not always been located in the best locations due to terrain or ownership status. We plan to revaluate each transect this spring to improve the quality of data being gathered. The spring and summer of 2012 were severe and little to no new growth was documented by field staff. Most available

forge appeared to be growth from 2011. The reader is referred to the Strategic Habitat Plan Annual Report for further background information on shrub transects.

Field Data
Fawn production declined from 87 fawns: 100 does in 2011 to 66 fawns: 100 does in 2012 which is the lowest documented in 5 years. Buck ratios have been declining over the past 10 years and are down from the 2011 count of 37 bucks: 100 does to 33 bucks: 100 does in 2012. Hunter success for the herd unit was 76% overall. Success for reduced price licenses went up but success for full price licenses decreased by 10% which coincides with the decrease in buck ratios. The Hunter Satisfaction Survey showed 83% of hunters were satisfied or very satisfied with their hunt with 10% of respondents remaining neutral indicating there was good opportunity throughout the Herd Unit.

Harvest Data
The biggest challenge we face in this herd is trying to increase harvest when hunting pressure on the few accessible areas has decreased the quality and abundance of game. A confounding influence is that some segments of the herd move back and forth between Colorado and Wyoming. We decreased Type 1 license in Area 45 by 100, due to crowding on the HMAs and other accessible public lands which reduces hunter success.

Population
The Centennial pronghorn herd is slowly trending downward. The Constant Juvenile – Constant Adult Mortality Rate (CJCA) spreadsheet model was chosen to use for the post season population estimate of this herd. This model did not have the lowest relative AIC score but had the most reasonable population estimate. To achieve a reasonable model we truncated the years to 2000 and constrained the juvenile survival rate to 0.3. The model projected a declining population since 2006 but stabilizing near 16,000 in recent years. The model is of Fair quality Harvest data indicates a recent decline and field personnel have noted fewer pronghorn.

Management Summary
If we attain the projected harvest of 1,200 pronghorn and maintain fawn ratios in the 70s, the population will continue to slightly decline towards the objective. We predict a 2013 post-season population of about 16,000 if we do not have a high mortality from this spring or summer drought conditions. The season structure for this herd has slowly brought the population closer to the objective. With the number of HMAs now in the herd unit we are having an effect on the herd through harvest. However the decline in hunter success directly reflects the quality of the hunt on the publicly accessible areas. The reduction in Type 1s should alleviate pressure on HMAs.

INPUT	
Species:	Pronghorn
Biologist:	Lee Knox
Herd Unit & No.:	PR527
Model date:	02/01/13

☑ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	198	208	☑ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	1009	1019	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	92	173	☐ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
2000	7127	5362	11398	**23886**	7078	4652	10994	**22725**	5444	11452	**16896**	17371	2924		6000
2001	7215	5335	11223	**23774**	7163	4680	10848	**22690**	5486	11328	**16814**				6000
2002	7638	5376	11102	**24116**	7599	4457	10650	**22705**	5330	11210	**16539**				6000
2003	7291	5223	10985	**23500**	7214	4304	10411	**21930**	5111	10900	**16012**	12369	1463		6000
2004	8939	5009	10682	**24631**	8844	3921	10236	**23001**	4989	10997	**15987**				6000
2005	7793	4889	10777	**23459**	7723	3390	10066	**21179**	4288	10647	**14935**				14000
2006	7030	4202	10434	**21666**	6962	3291	9700	**19952**	4119	10180	**14298**				14000
2007	6201	4036	9976	**20214**	6113	3066	9342	**18522**	3760	9708	**13468**	17454	3121		14000
2008	6482	3685	9514	**19681**	6394	2673	8828	**17895**	3430	9263	**12694**				14000
2009	7086	3362	9078	**19526**	7005	2511	8408	**17924**	3390	8968	**12358**				14000
2010	6429	3322	8789	**18540**	6349	2537	8188	**17074**	3315	8662	**11977**				14000
2011	7343	3249	8489	**19081**	7257	2484	7958	**17699**	3409	8593	**12002**				14000
2012	5576	3340	8421	**17338**	5500	2661	7834	**15995**	3306	8195	**11501**				14000
2013	5997	3240	8031	**17269**	5916	2580	7434	**15931**							14000
2014															14000
2015															14000
2016															14000
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Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
2000	0.31			0.92		
2001	0.31			0.92		
2002	0.31			0.92		
2003	0.31			0.92		
2004	0.31			0.92		
2005	0.31			0.92		
2006	0.31			0.92		
2007	0.31			0.92		
2008	0.31			0.92		
2009	0.31			0.92		
2010	0.31			0.92		
2011	0.31			0.92		
2012	0.31			0.92		
2013	0.31			0.92		
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0						
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0						
0						
0						
0						
0						

Parameters:	Optim cells
Juvenile Survival =	0.312
Adult Survival =	0.925
Initial Total Male Pop/10,000 =	0.536
Initial Female Pop/10,000 =	1.140

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Classification Counts							Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
2000		62.53	3.19	47.04	59.42	3.08	645	367	44	1056	13.2	3.5
2001		64.29	2.74	47.54	50.46	2.33	596	341	48	985	12.3	3.3
2002		68.80	3.17	48.43	50.99	2.58	836	411	35	1282	17.1	4.1
2003		66.37	3.48	47.54	28.57	2.01	835	522	70	1427	17.6	5.2
2004		83.68	3.17	46.89	47.90	2.15	989	406	87	1482	21.7	4.2
2005		72.30	2.78	45.37	48.08	2.10	1363	647	63	2073	30.7	6.6
2006		67.37	3.22	40.27	39.43	2.25	828	668	62	1558	21.7	7.0
2007		62.16	2.96	40.46	40.19	2.22	882	576	80	1538	24.0	6.4
2008		68.13	2.92	38.73	43.78	2.17	920	624	80	1624	27.5	7.2
2009		78.05	3.24	37.03	57.62	2.62	773	609	74	1456	25.3	7.4
2010		73.15	3.08	37.80	36.50	1.93	713	546	73	1332	23.6	6.8
2011		86.50	4.67	38.28	36.84	2.61	696	482	78	1256	23.6	6.2
2012		66.21	2.88	39.67	33.33	1.83	618	534	69	1221	20.4	7.0
2013		74.67	3.32	40.35	41.59	2.23	550	543	74	1166	20.4	7.4
2014												
2015												
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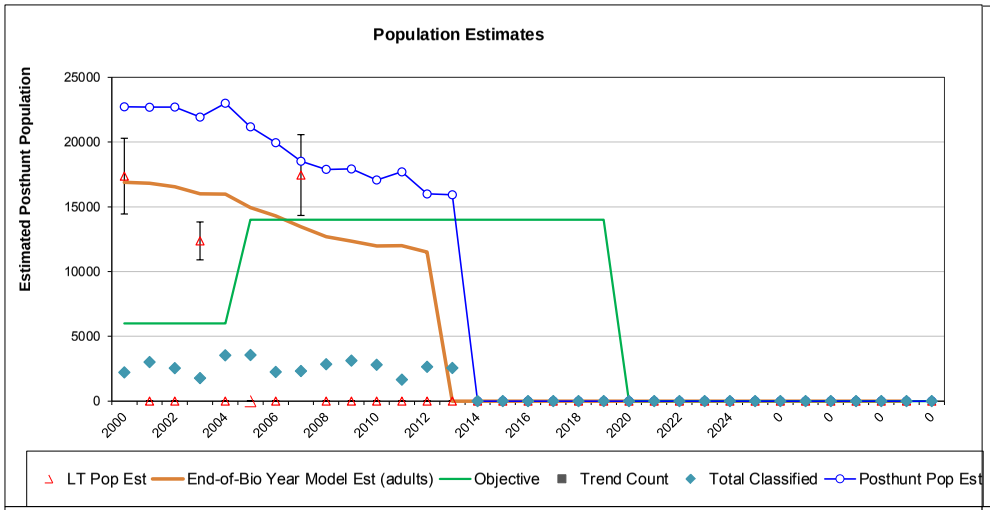
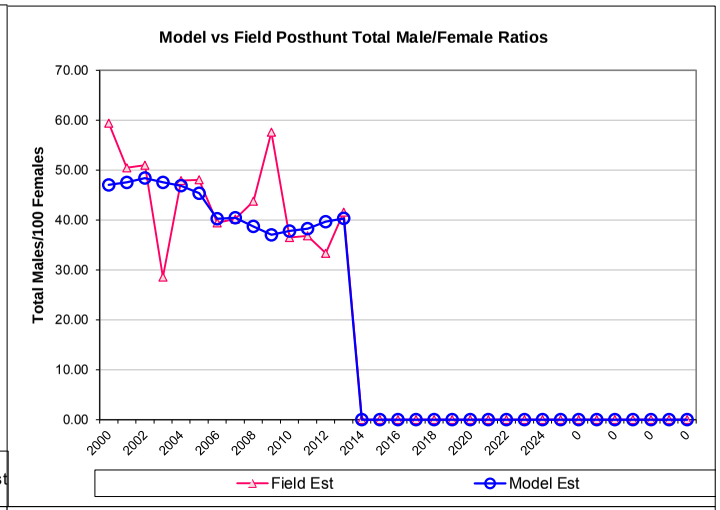
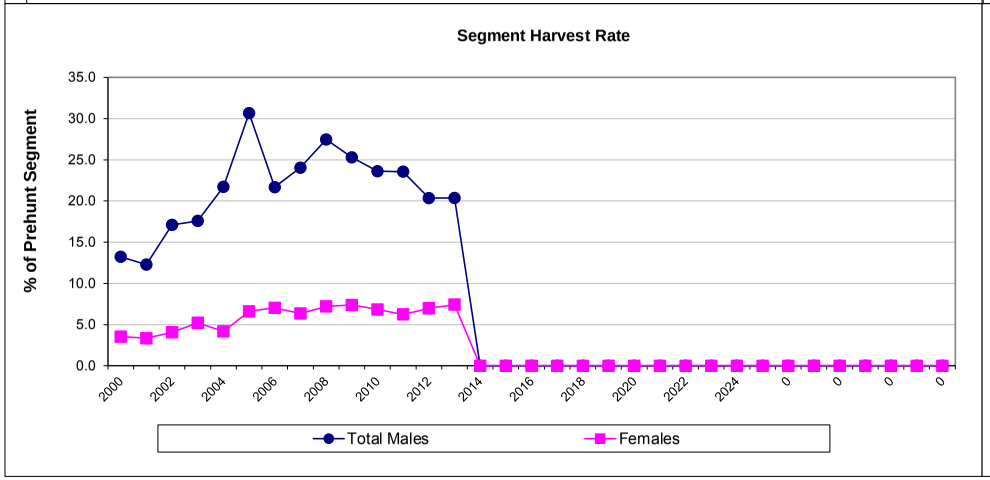
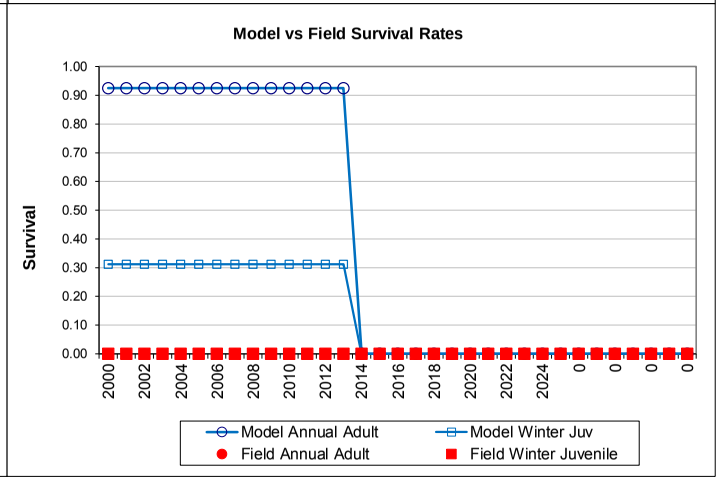
FIGURES





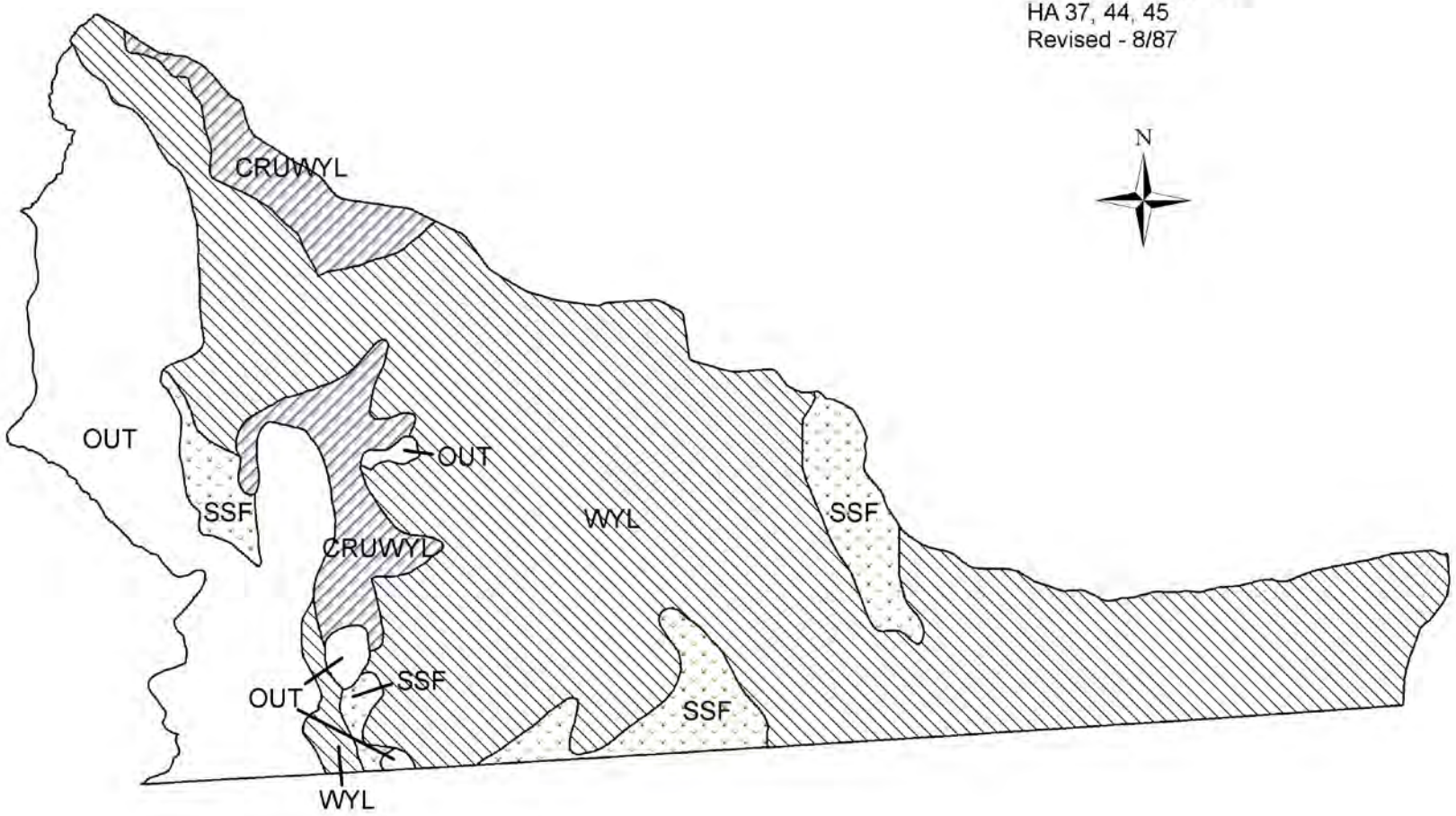




Comments:

END

PH527 - Centennial
HA 37, 44, 45
Revised - 8/87



2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR528 - ELK MOUNTAIN

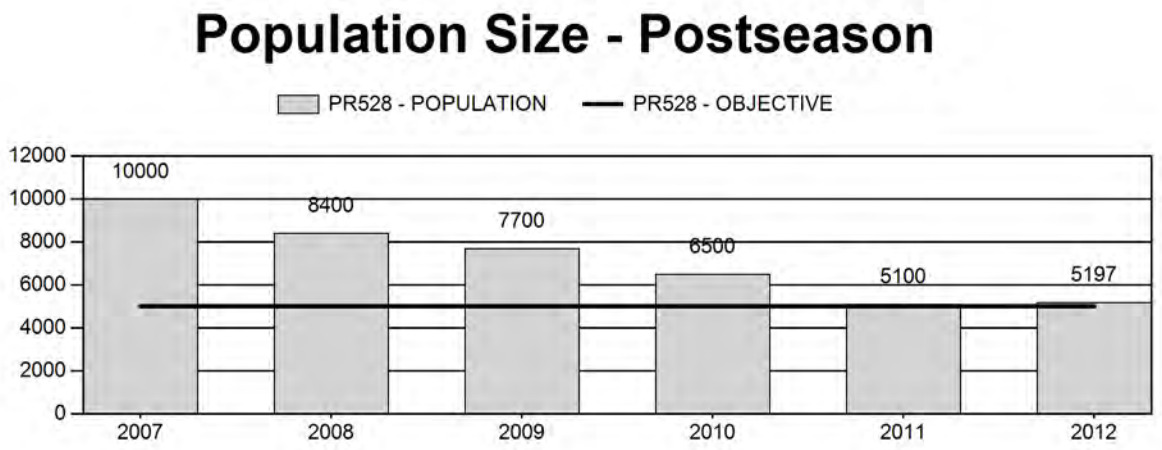
HUNT AREAS: 50
PREPARED BY: WILL SCHULTZ

	2007 - 2011 Average	2012	2013 Proposed
Population:	7,540	5,197	4,700
Harvest:	917	865	780
Hunters:	992	1,044	900
Hunter Success:	92%	83%	87%
Active Licenses:	1,068	1,083	900
Active License Percent:	86%	80%	87%
Recreation Days:	3,324	3,409	3,000
Days Per Animal:	3.6	3.9	3.8
Males per 100 Females	41	34	
Juveniles per 100 Females	46	67	

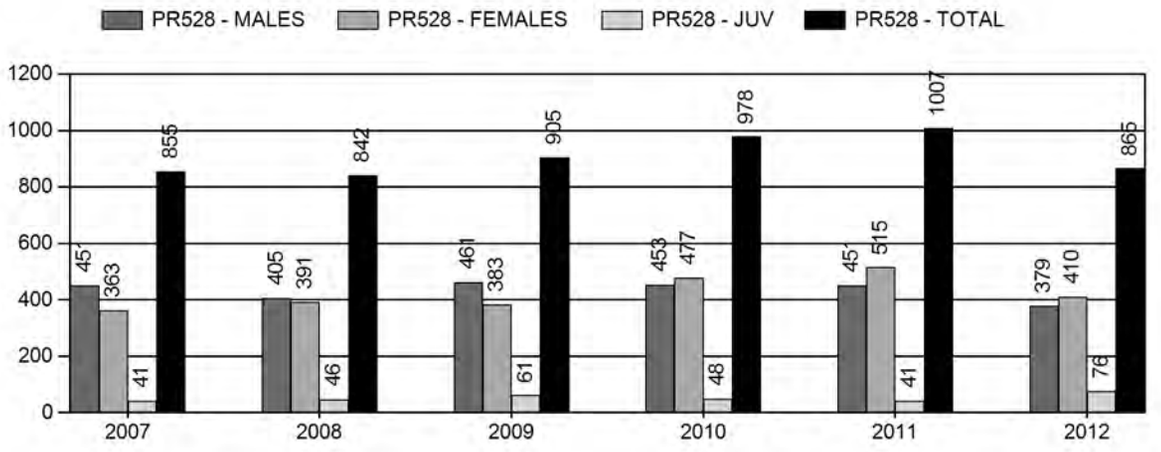
Population Objective:	5,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	4%
Number of years population has been + or - objective in recent trend:	20
Model Date:	03/01/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

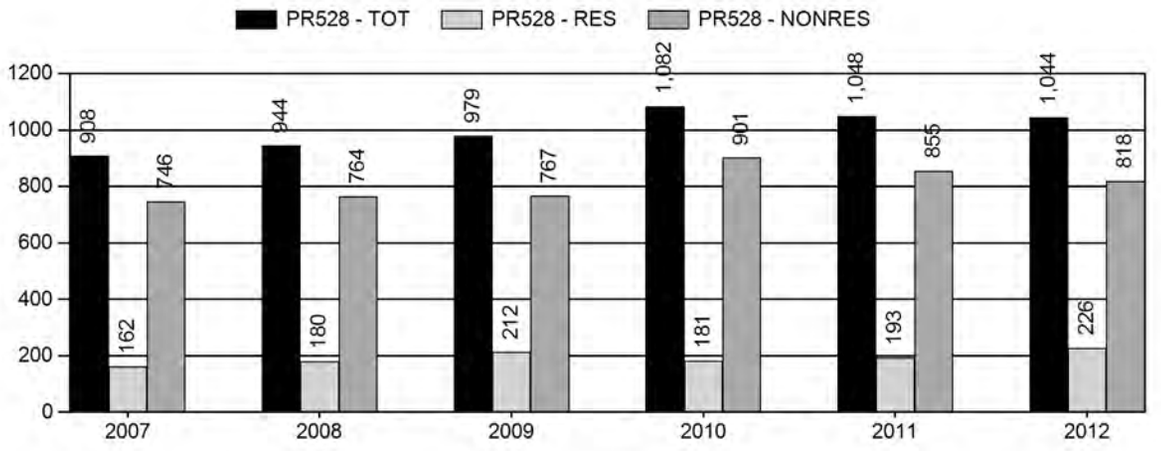
	JCR Year	Proposed
Females ≥ 1 year old:	11.1%	16.1%
Males ≥ 1 year old:	18.5%	39.9%
Juveniles (< 1 year old):	2.3%	1.5%
Total:	11.02%	14%
Proposed change in post-season population:	-12.1%	-15.3%



Harvest



Number of Hunters



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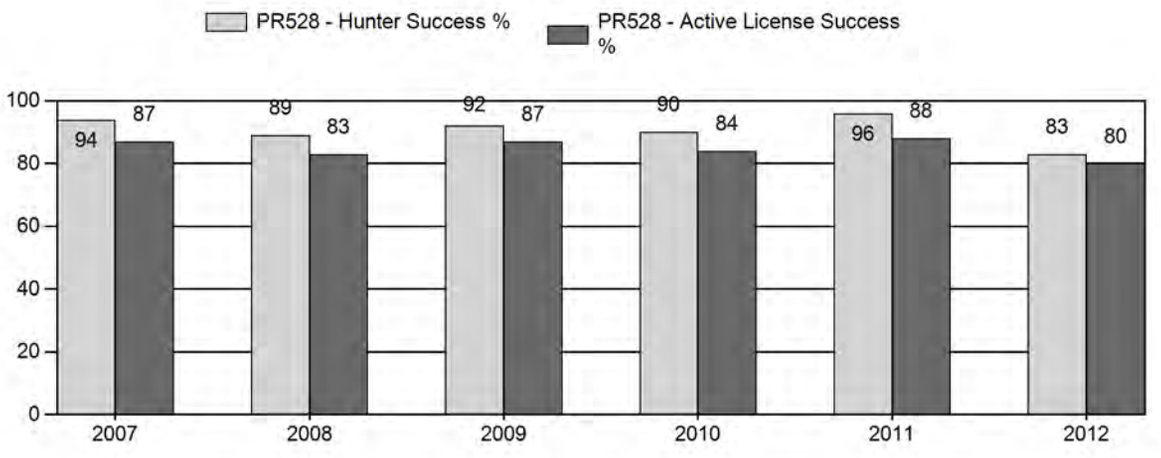
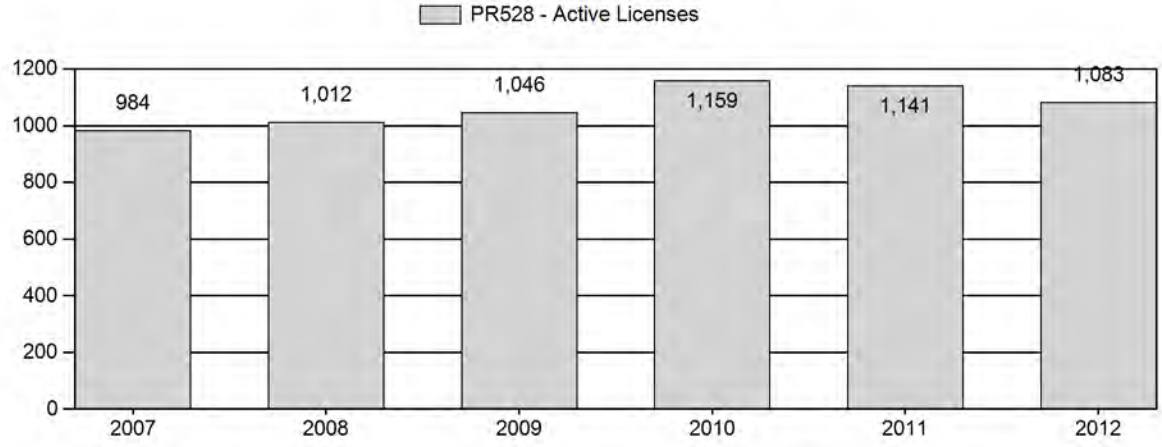
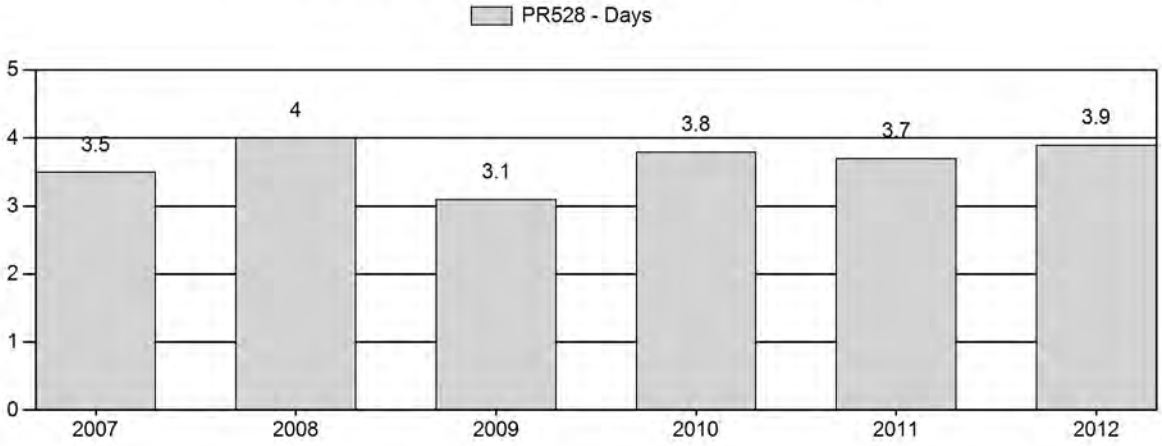


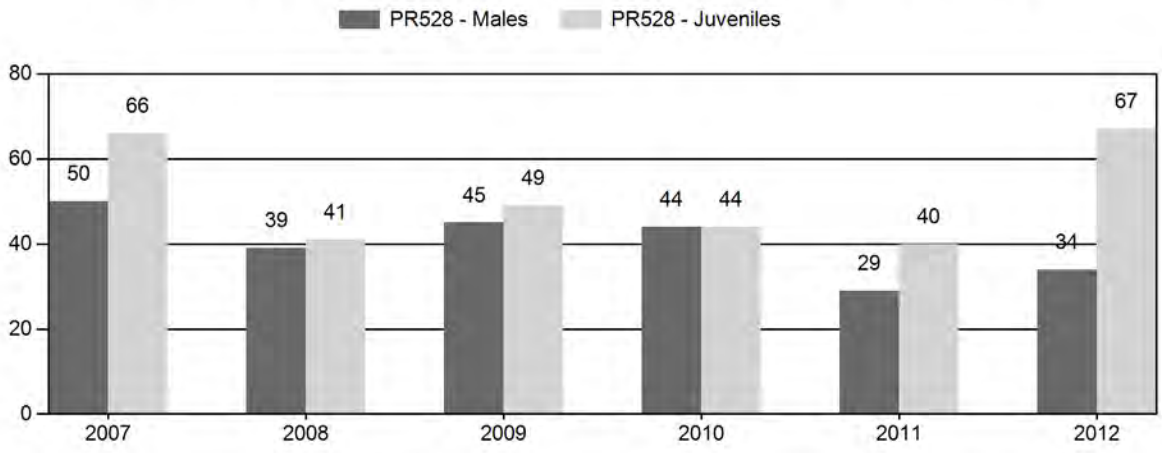
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR528 - ELK MOUNTAIN

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	11,000	52	164	216	23%	429	46%	284	31%	929	2,120	12	38	50	± 7	66	± 8	44
2008	9,300	84	234	318	22%	808	55%	331	23%	1,457	1,831	10	29	39	± 4	41	± 4	29
2009	8,700	111	272	383	23%	846	52%	412	25%	1,641	1,617	13	32	45	± 4	49	± 4	34
2010	7,500	91	305	396	23%	907	53%	396	23%	1,699	1,668	10	34	44	± 4	44	± 4	30
2011	6,300	82	140	222	17%	764	59%	303	24%	1,289	0	11	18	29	± 3	40	± 4	31
2012	6,148	73	115	188	17%	545	50%	367	33%	1,100	1,098	13	21	34	± 4	67	± 7	50

ELK MOUNTAIN PRONGHORN (PR528)
Hunt Area 50
2013 Hunting Seasons

Hunt Area	Type	Dates of Seasons		Limited Quota	Limitations
		Opens	Closes		
50	1	Sep. 16	Oct. 31	400	Limited quota licenses; any antelope
	6	Sep. 16	Oct. 31	500	Limited quota licenses; doe or fawn
	0	Sep. 1	Sep. 15	50	Limited quota licenses; any antelope, muzzle-loading firearms only

Hunt Area	Type	Quota change from 2012
50	1	-100
50	6	-200
Herd Unit	**1**	**-100**
Total	**6**	**-200**

Management Evaluation
Current Management Objective: 5,000
Management Strategy: Recreational
2012 Postseason Population Estimate: 5,200
2013 Proposed Postseason Population Estimate: 4,700

Pronghorn in the Elk Mountain herd unit are managed toward a numeric objective of 5,000. The population was estimated using a spreadsheet model developed in 2012 and update in 2013. The herd is managed for recreation opportunity. The objective was last reviewed in 1997.

Herd Unit Issues
The Elk Mountain herd unit is comprised predominantly of either private or land-locked public land. Hunter access to these lands is limited, particularly east of Elk Mountain, where most pronghorn in this herd unit are found during the hunting season. Private lands open to hunters receive a large amount of pressure. Much of the herd unit's sagebrush ecosystem remains intact. However, increased agricultural, energy, and residential development does threaten the sagebrush habitat in this area.

Weather
Weather in this herd unit was hot and dry during the past year. This weather pattern most likely had a negative influence on pronghorn. For specific meteorological information for the Elk Mountain Herd Unit the reviewer is referred to the following links:
http://www.ncdc.noaa.gov/temp-and-precip/time-series/
http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html

Habitat
No pronghorn habitat production/utilization data was available for this herd unit. However, production was assumed poor and utilization high due to drought conditions.

Field Data
Preseason ratios for this herd were 34 bucks and 67 fawns/100does in 2012. Buck ratios and fawn ratios increased in recent classification trend. Past classifications had been collected from fixed-wing aircraft. However, beginning in 2011, classification survey was conducted from the ground and may be biased in comparison to the previous surveys.

Harvest Data
Preliminary data for the 2012 hunting season indicated 864 pronghorn were harvested which was a decrease of 14% from 20110. Overall harvest success declined 4% to 84% for 1,031 active licenses in 2012. Days/pronghorn increased as well; all the indications of a declining pronghorn population.

Population
Spreadsheet model estimates indicate the Elk Mountain herd is near the management objective of 5,000. The CJ, CA model was selected for the Elk Mountain Herd Unit in 2012, even though the SCJ, SCA showed a slight improvement over it in Fit and AICc scores. The CJ, CA model aligned closer than the SCJ, SCA model to the 2007 and 2010 LT end of year density estimates and this was the impetuous for selecting for selecting the CJ, CA model. We will have access to adult survival rates for the past 2 years from the Dunlap Wind Farm research in the near future. We plan to incorporate this survival data into future models.

Management Summary
License numbers are reduced for the 2013 season. Liberal seasons in combination with severe winters have reduced pronghorn numbers in this herd unit over the past 5 years. The decrease in license numbers will also assist in increasing harvest success rates and lowering the days/pronghorn rates. The popular muzzleloader only season will continue to be offered in 2013. License numbers perhaps could have been reduced further with respect to the management objective. However, given the recent return to drought conditions in this area, continued liberal pronghorn harvest appears prudent.

Bibliography of Herd Specific Studies

None.

INPUT	
Species:	PRONGHORN
Biologist:	SCHULTZ
Herd Unit & No.:	ELK MTN. 528
Model date:	1-Mar-2013

☑ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	72	81	☑ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	65	79	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	36	148	☐ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	2470	2232	6298	**11001**	2397	1723	5779	**9899**	2012	5763	**7775**				5000
1994	3905	1972	5648	**11525**	3840	1533	5168	**10541**	2140	5498	**7638**				5000
1995	2034	2097	5388	**9519**	1978	1750	5107	**8834**	1972	5083	**7055**				5000
1996	3097	1932	4981	**10010**	3079	1617	4935	**9631**	2088	5183	**7271**				5000
1997	2814	2046	5080	**9940**	2806	1644	5031	**9481**	2052	5220	**7272**				5000
1998	2468	2011	5115	**9594**	2462	1605	5033	**9100**	1947	5148	**7095**				5000
1999	2933	1908	5045	**9887**	2916	1568	4913	**9397**	2008	5121	**7129**				5000
2000	2646	1968	5019	**9632**	2630	1605	4889	**9124**	1982	5042	**7024**				5000
2001	2961	1942	4941	**9844**	2944	1565	4856	**9365**	2007	5080	**7087**				5000
2002	3539	1967	4978	**10484**	3529	1580	4896	**10004**	2141	5238	**7379**				5000
2003	2958	2099	5133	**10190**	2935	1694	4988	**9617**	2120	5191	**7311**				5000
2004	3513	2078	5088	**10678**	3505	1603	4984	**10093**	2151	5313	**7464**				5000
2005	3999	2108	5207	**11314**	3992	1675	5091	**10759**	2321	5511	**7832**				5000
2006	3072	2275	5401	**10748**	3046	1781	5194	**10021**	2214	5398	**7612**				5000
2007	3502	2169	5290	**10962**	3457	1673	4891	**10021**	2192	5177	**7369**	8263	1378		5000
2008	2079	2148	5074	**9301**	2028	1703	4644	**8374**	1931	4653	**6583**				5000
2009	2220	1892	4560	**8672**	2153	1385	4138	**7677**	1652	4206	**5858**				5000
2010	1800	1619	4122	**7541**	1747	1120	3598	**6465**	1329	3618	**4947**	8046	1285		5000
2011	1406	1302	3546	**6254**	1361	806	2979	**5147**	1056	3117	**4174**				5000
2012	2057	1035	3055	**6148**	1974	608	2615	**5197**	984	2797	**3781**				5000
2013	1846	965	2741	**5551**	1818	580	2301	**4699**							5000
2014															5000
2015															5000
2016															5000
2017															5000
2018															5000
2019															5000
2020															5000
2021															5000
2022															5000
2023															5000
2024															5000
2025															5000

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.40			0.91		
1994	0.40			0.91		
1995	0.40			0.91		
1996	0.40			0.91		
1997	0.40			0.91		
1998	0.40			0.91		
1999	0.40			0.91		
2000	0.40			0.91		
2001	0.40			0.91		
2002	0.40			0.91		
2003	0.40			0.91		
2004	0.40			0.91		
2005	0.40			0.91		
2006	0.40			0.91		
2007	0.40			0.91		
2008	0.40			0.91		
2009	0.40			0.91		
2010	0.40			0.91		
2011	0.40			0.91		
2012	0.40			0.91		
2013	0.40			0.91		
2014						
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:	Optim cells
Juvenile Survival =	0.400
Adult Survival =	0.906
Initial Total Male Pop/10,000 =	0.223
Initial Female Pop/10,000 =	0.630

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

	Classification Counts						Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		39.22	2.92	35.45	31.72	2.56	463	472	66	1001	22.8	8.2
1994		69.15	4.55	34.92	43.97	3.35	399	436	59	894	22.3	8.5
1995		37.75	2.34	38.92	40.38	2.44	316	256	51	623	16.6	5.2
1996		62.16	4.13	38.79	42.06	3.18	287	42	16	345	16.3	0.9
1997		55.40	4.15	40.28	40.60	3.38	366	44	7	417	19.7	1.0
1998		48.25	3.17	39.32	38.01	2.71	369	75	5	449	20.2	1.6
1999		58.15	3.59	37.82	33.85	2.52	309	120	16	445	17.8	2.6
2000		52.71	3.19	39.20	35.06	2.44	330	118	14	462	18.4	2.6
2001		59.92	3.54	39.30	36.68	2.56	343	77	15	435	19.4	1.7
2002		71.09	4.70	39.51	38.91	3.13	352	75	9	436	19.7	1.7
2003		57.64	3.86	40.88	34.48	2.76	368	132	21	521	19.3	2.8
2004		69.04	4.25	40.84	48.61	3.34	431	94	7	532	22.8	2.0
2005		76.80	4.42	40.48	48.99	3.24	393	105	6	504	20.5	2.2
2006		56.88	2.86	42.12	49.36	2.60	449	188	24	661	21.7	3.8
2007		66.20	5.06	41.01	50.35	4.20	451	363	41	855	22.9	7.5
2008		40.97	2.67	42.34	39.36	2.61	405	391	46	842	20.7	8.5
2009		48.70	2.93	41.50	45.27	2.79	461	383	61	905	26.8	9.2
2010		43.66	2.63	39.26	43.66	2.63	453	477	48	978	30.8	12.7
2011		39.66	2.69	36.74	29.06	2.22	451	515	41	1007	38.1	16.0
2012		67.34	4.55	33.88	34.50	2.92			400	864	41.2	14.4
2013		67.34	4.55	35.20	34.50	2.92			400	775	39.9	16.1
2014												
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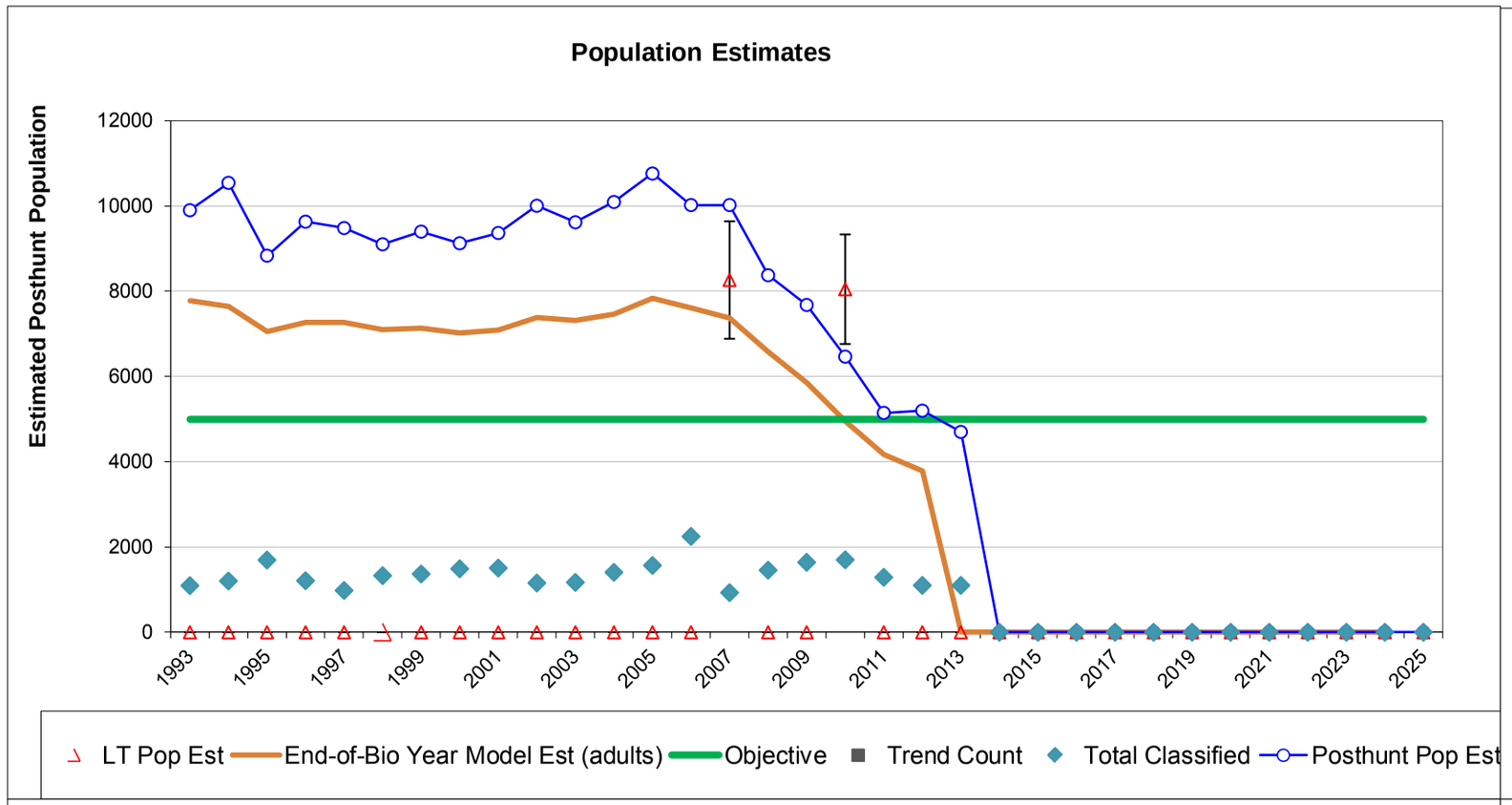
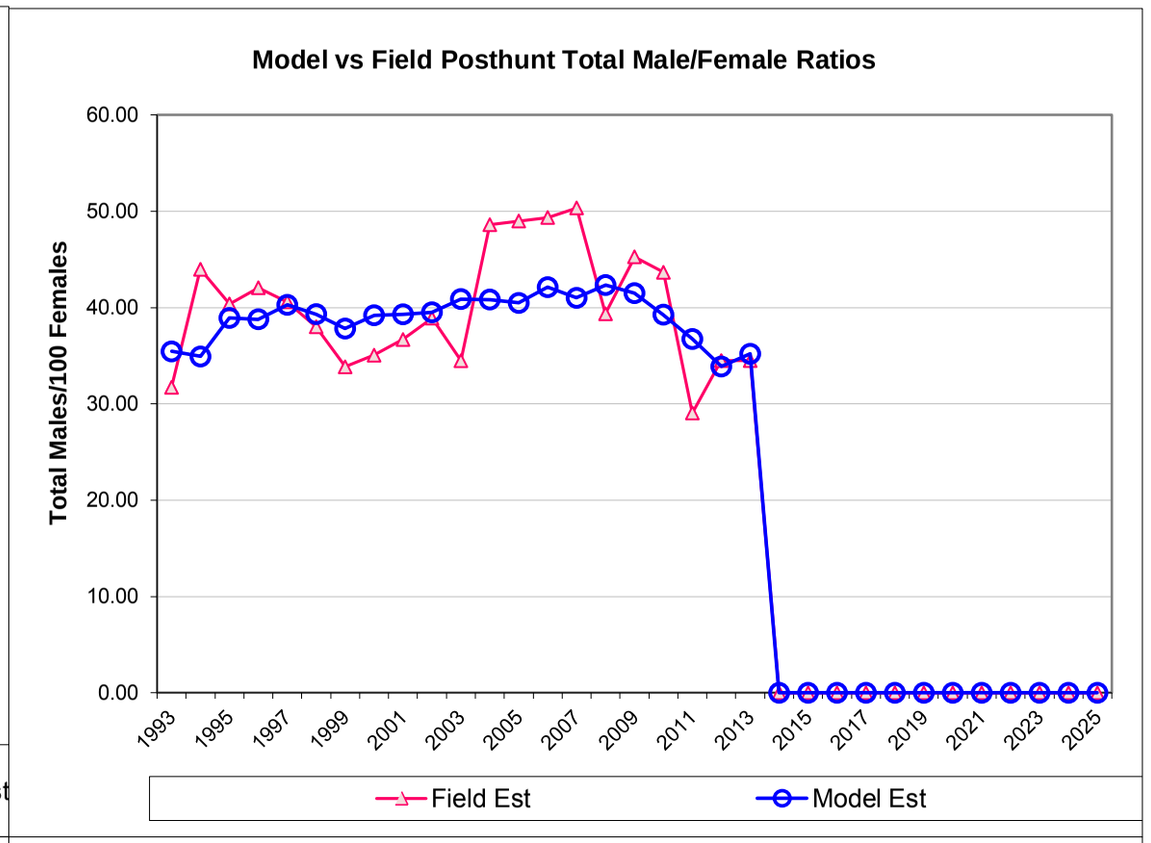
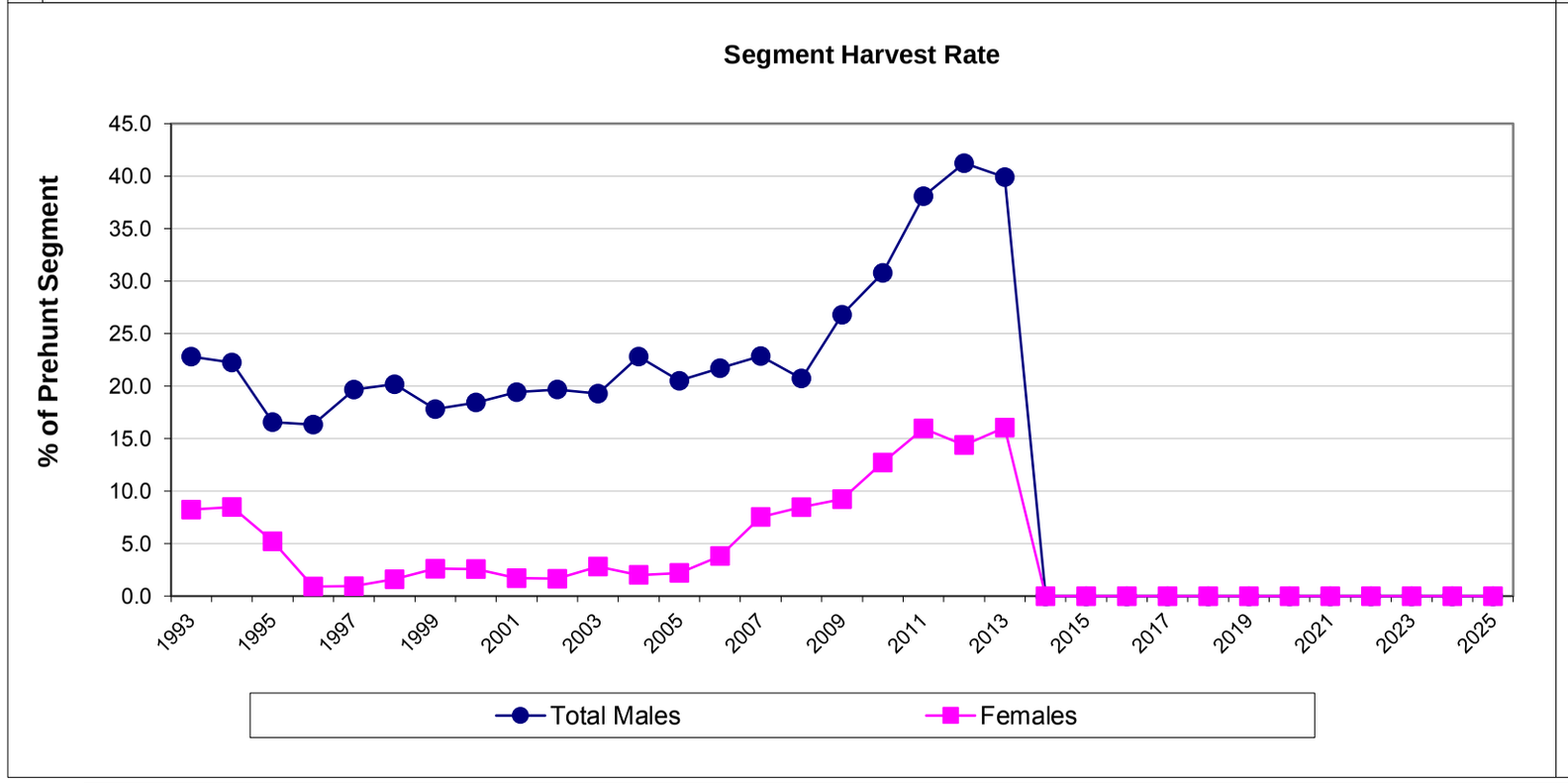
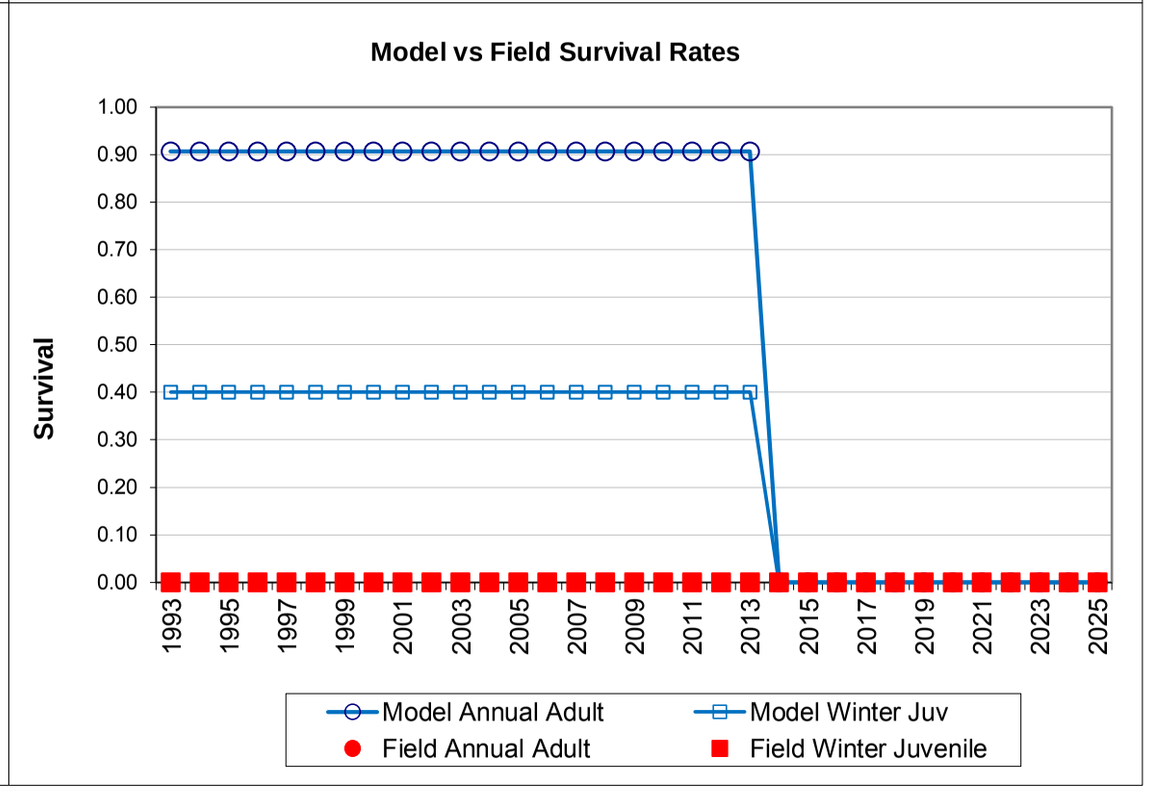
FIGURES





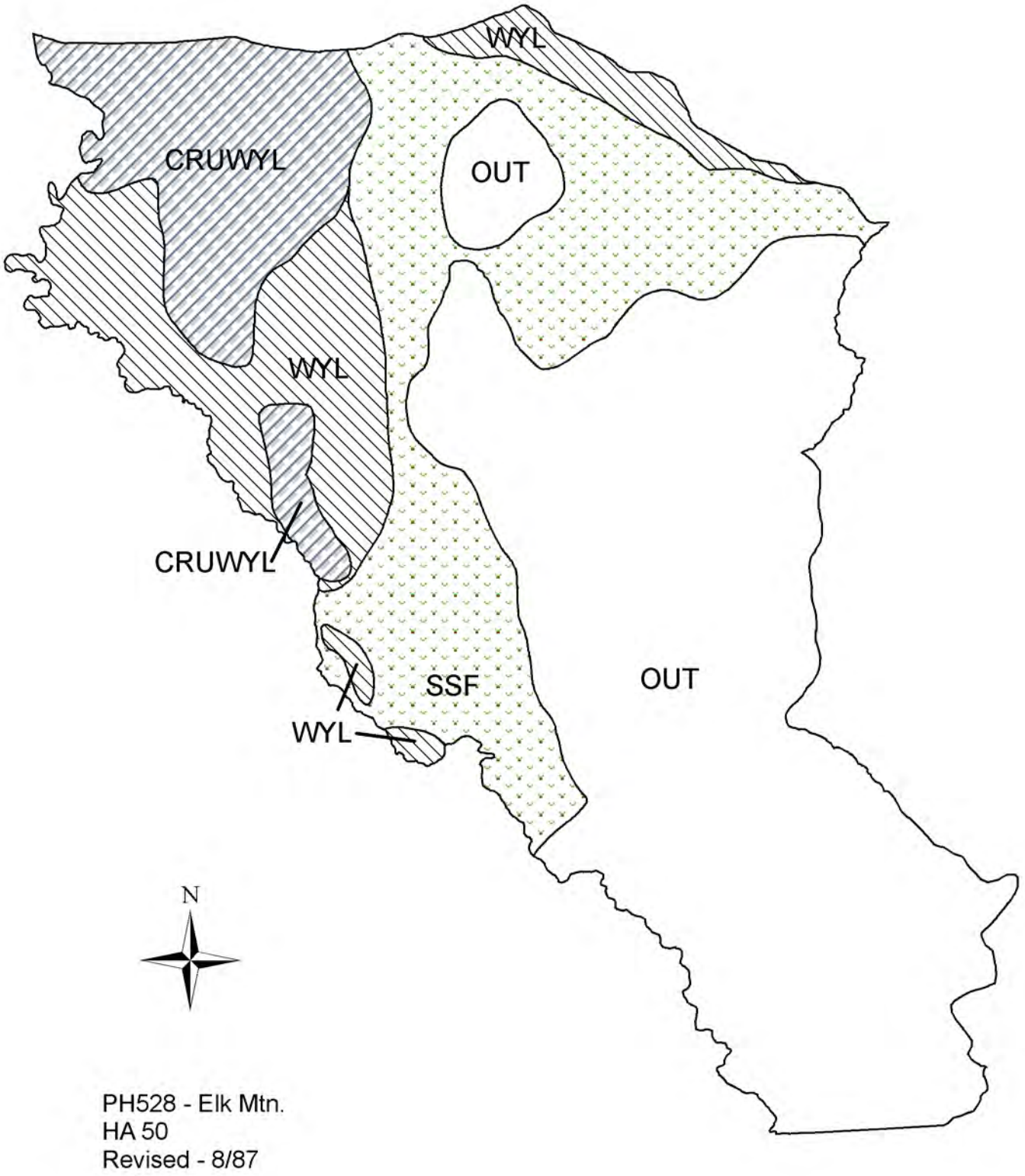




Comments:

The CJ,CA model was selected even though the SCJ,SCA showed a slight improvement in Fit and AICc scores. The CJ,CA model tracked closer than the SCJ,SCA to the 2007 and 2010 LT end of year density estimates.

END



PH528 - Elk Mtn.
HA 50
Revised - 8/87

2012 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2012 - 5/31/2013

HERD: PR529 - BIG CREEK

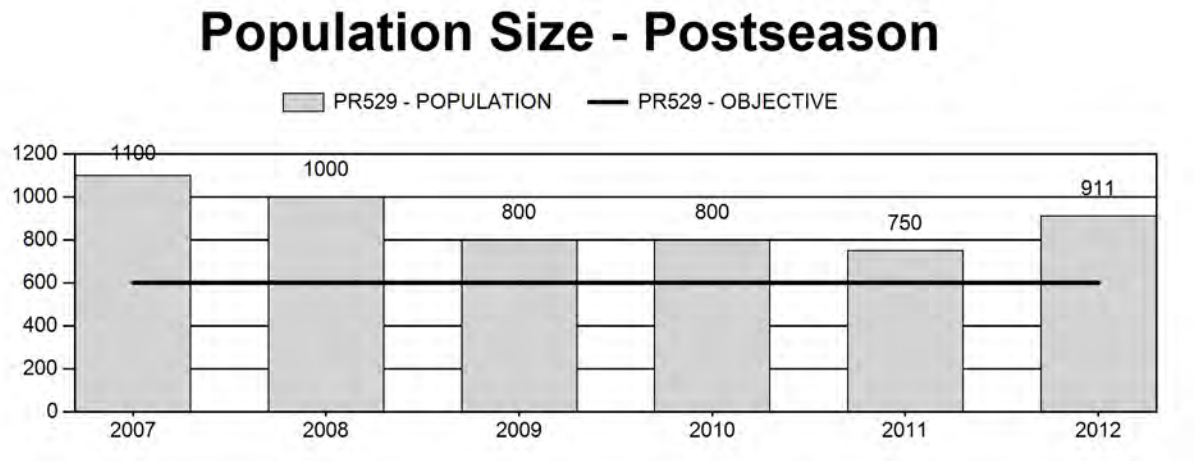
HUNT AREAS: 51
PREPARED BY: WILL SCHULTZ

	2007 - 2011 Average	2012	2013 Proposed
Population:	890	911	900
Harvest:	115	39	39
Hunters:	111	39	50
Hunter Success:	104%	100%	78%
Active Licenses:	132	51	50
Active License Percent:	87%	76%	78%
Recreation Days:	438	154	150
Days Per Animal:	3.8	3.9	3.8
Males per 100 Females	40	84	
Juveniles per 100 Females	34	62	

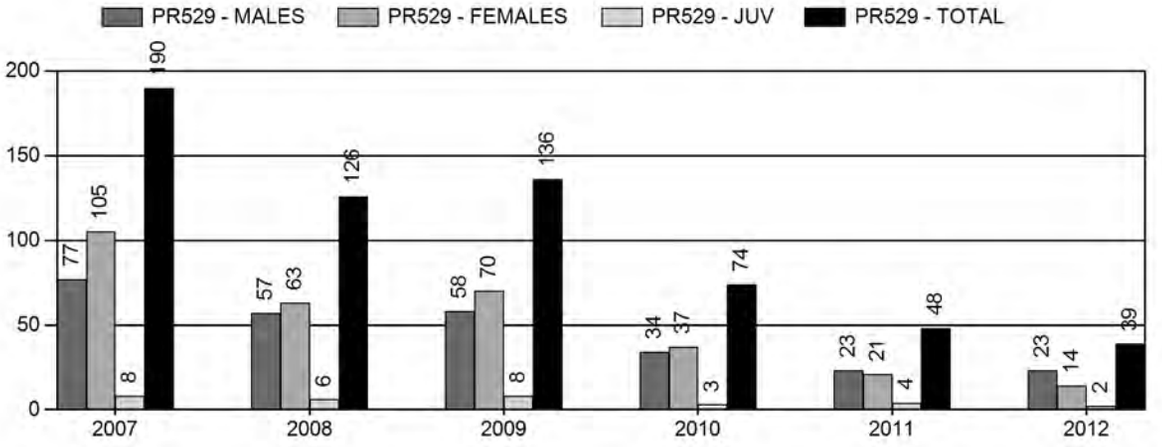
Population Objective:	600
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	52%
Number of years population has been + or - objective in recent trend:	20
Model Date:	03/01/2013

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

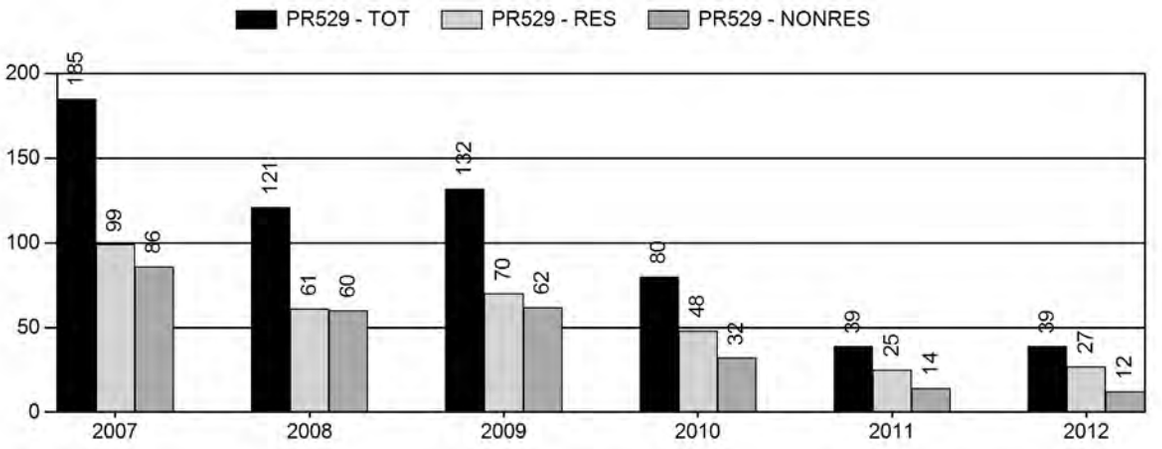
	JCR Year	Proposed
Females ≥ 1 year old:	2.2%	3.3%
Males ≥ 1 year old:	4.9%	13.0%
Juveniles (< 1 year old):	1.1%	.1%
Total:	2.75%	4.3%
Proposed change in post-season population:	-3.0%	-4.3%



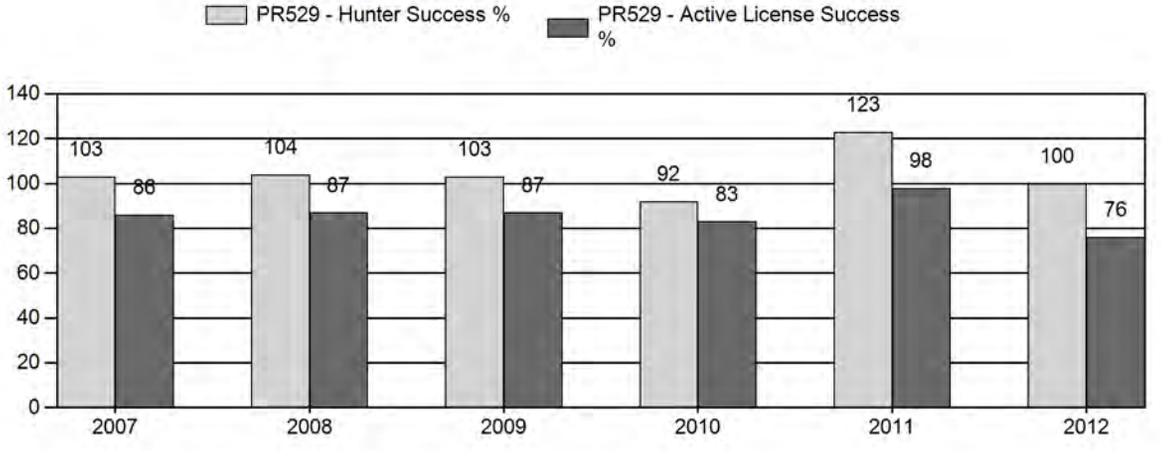
Harvest



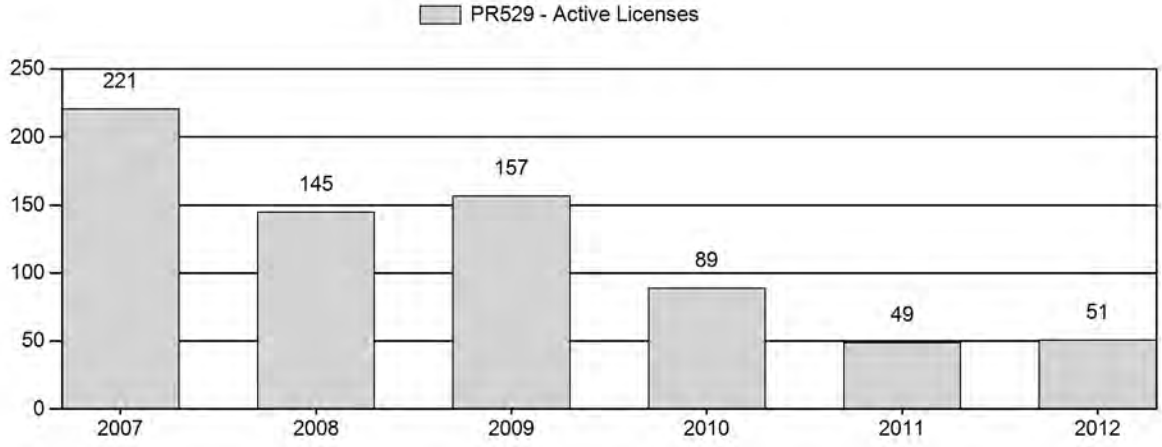
Number of Hunters



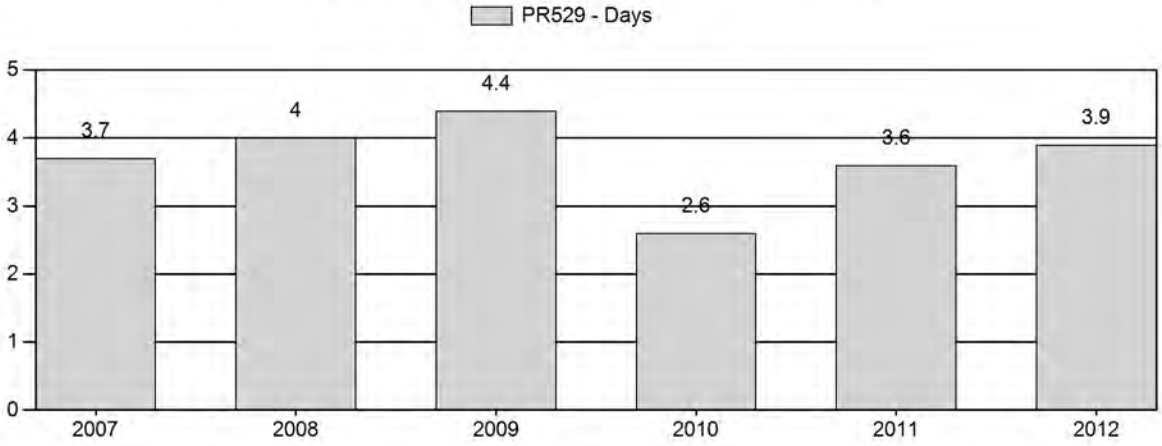
Harvest Success



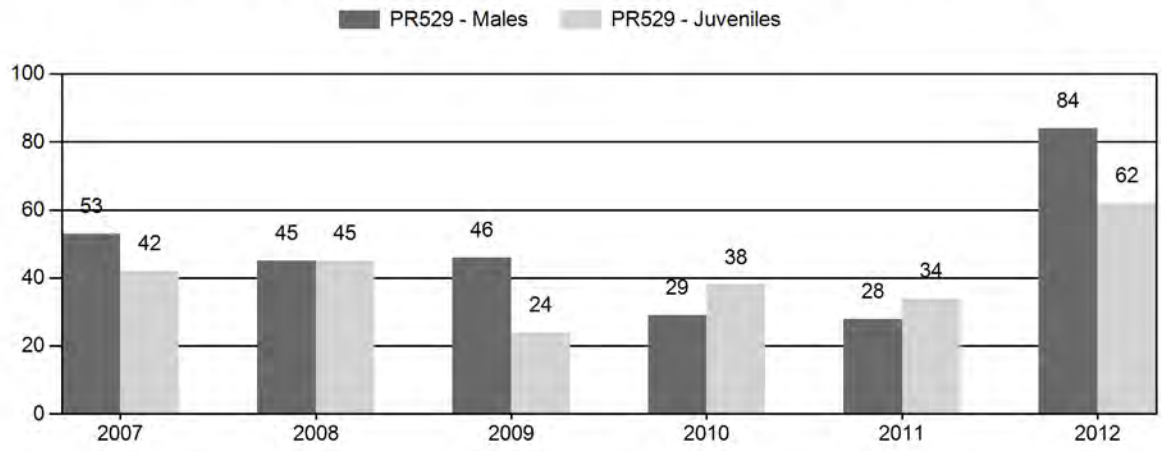
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR529 - BIG CREEK

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	1,300	28	58	86	27%	162	51%	68	22%	316	902	17	36	53	± 10	42	± 9	27
2008	1,150	9	25	34	24%	75	52%	34	24%	143	500	12	33	45	± 14	45	± 14	31
2009	950	42	84	126	27%	272	59%	64	14%	462	476	15	31	46	± 6	24	± 4	16
2010	850	13	49	62	17%	214	60%	82	23%	358	361	6	23	29	± 5	38	± 6	30
2011	800	15	33	48	17%	170	62%	57	21%	275	0	9	19	28	± 6	34	± 7	26
2012	952	32	60	92	34%	110	41%	68	25%	270	0	29	55	84	± 16	62	± 13	34

BIG CREEK PRONGHORN (PR529)
Hunt Area 51
2013 Hunting Season

Hunt Area	Type	Dates of Seasons		Limited Quota	Limitations
		Opens	Closes		
51	1	Sep. 16	Nov. 14	25	Limited quota licenses; any antelope
	6	Sep. 16	Nov. 14	25	Limited quota licenses; doe or fawn

Hunt Area	Type	Quota change from 2012
Herd Unit Total	**1**	**0**
	6	**0**

Management Evaluation
Current Management Objective: 600
Management Strategy: Recreational
2012 Postseason Population Estimate: 860
2013 Proposed Postseason Population Estimate: 910

Pronghorn in the Big Creek herd unit are managed toward a numeric objective of 600. The population was estimated using a spreadsheet model developed in 2012 and update in 2013. The herd is managed for recreation opportunity. The objective was last reviewed in 1997.

Herd Unit Issues
Pronghorn damage to alfalfa crops has diminished due to the low number of pronghorn observed in this herd unit. Access is difficult except for on those private lands receiving damage. Recent changes in land use have been observed in this herd unit. Several sections of abandoned wheat fields have been converted into cattle pastures which have been grazed intensively. Development in the Trail Run subdivision is also continuing.
In the past these areas provided pronghorn with seasonal habitat and the observed changes in land use appear to be displacing pronghorn into other areas.

In 2011, the Carbon County Predator Management District, in cooperation with WGFD, initiated a coyote removal project for the benefit of the Big Creek Herd Unit. This project focused removal efforts on the very southeast portion of the herd unit. Preliminary data appeared to indicate fawn ratios have increased in this localized area. The removal project will continue through the fall of 2013.

Weather
Weather in this herd unit was hot and dry during the past year. This weather pattern most likely had a negative influence on pronghorn. For specific meteorological information for the Big Creek Herd Unit the reviewer is referred to the following links:
http://www.ncdc.noaa.gov/temp-and-precip/time-series/
http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html

Habitat
No pronghorn habitat production/utilization data was available for this herd unit. However, production was assumed poor and utilization high.

Field Data
The 2012 preseason ratios were a suspect 84 bucks and 62 fawns per 100 does produced from an inadequate sample of 270 pronghorn obtained through ground surveys. Preseason buck ratios increased 66% in 2012, while fawn ratios increased by 45%.

Harvest Data
Preliminary data for the 2012 hunting season indicated a total of 39 pronghorn were harvested with 100% success for 39 active licenses.

Population
The 2012 CJ,CA model was selected for the Big Creek Herd Unit because it had the best AICc score. The population estimate is plausible. Accuracy of the end of year density estimates developed from LT surveys are suspect. Small sample sizes and interstate movements for this herd unit may bias LT survey results.

Management Summary
We have little confidence in our classification and LT survey results, and thus our population model results. Typically, ocular estimates and discussions with landowners provide better information about this herd unit's population dynamics.

We propose to maintain both the Type 1 and Type 6 licenses at 25 licenses for each type in the Big Creek Herd Unit. This season proposal will continue to provide a limited hunting opportunity for hunters in this predominantly private land area.

Bibliography of Herd Specific Studies
None.

INPUT	
Species:	Pronghorn
Biologist:	SCHULTZ
Herd Unit & No.:	BIG CR. PR529
Model date:	03/01/13

☑ Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	**Constant Juvenile & Adult Survival**	139	148	☑ CJ,CA Model	
SCJ,SCA	**Semi-Constant Juvenile & Semi-Constant Adult Survival**	132	158	☐ SCJ,SCA Mod	
TSJ,CA	**Time-Specific Juvenile & Constant Adult Survival**	122	223	☐ TSJ,CA Model	

Population Estimates from Top Model

Year	Predicted Prehunt Population (year *i*)			Total	Predicted Posthunt Population (year *i*)			Total	Predicted adult End-of-bio-year Pop (year *i*)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	387	374	1191	**1952**	377	337	1139	**1853**	399	1175	**1574**				600
1994	397	391	1152	**1939**	384	339	1089	**1813**	401	1127	**1528**				600
1995	428	393	1105	**1926**	418	350	994	**1762**	419	1040	**1459**				600
1996	492	411	1019	**1922**	480	367	941	**1788**	448	1003	**1450**				600
1997	255	439	983	**1677**	235	384	896	**1514**	411	905	**1316**				600
1998	400	402	887	**1689**	395	351	833	**1579**	417	884	**1301**				600
1999	479	408	867	**1754**	479	354	794	**1627**	438	864	**1302**				600
2000	308	430	846	**1584**	305	366	785	**1456**	413	819	**1232**				600
2001	462	404	802	**1669**	457	356	750	**1562**	434	816	**1250**				600
2002	390	425	799	**1615**	388	356	726	**1470**	420	778	**1198**				600
2003	213	412	763	**1387**	203	347	710	**1259**	371	724	**1095**				600
2004	451	364	709	**1524**	451	288	683	**1422**	367	753	**1120**				600
2005	293	360	738	**1391**	286	291	701	**1278**	334	734	**1068**				600
2006	503	328	719	**1549**	493	229	654	**1376**	314	728	**1043**				600
2007	300	308	714	**1321**	291	223	598	**1112**	269	631	**899**	737	183		600
2008	280	263	618	**1162**	274	201	549	**1023**	245	582	**827**				600
2009	134	240	571	**945**	126	176	494	**796**	191	498	**688**				600
2010	187	187	488	**861**	184	149	447	**780**	179	468	**647**	1462	298		600
2011	154	176	458	**788**	149	150	435	**735**	176	460	**636**				600
2012	279	172	451	**902**	276	147	435	**859**	198	478	**676**				600
2013	290	194	469	**952**	289	169	453	**911**							600
2014															600
2015															600
2016															600
2017															600
2018															600
2019															600
2020															600
2021															600
2022															600
2023															600
2024															600
2025															600

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.40			0.95		
1994	0.40			0.95		
1995	0.40			0.95		
1996	0.40			0.95		
1997	0.40			0.95		
1998	0.40			0.95		
1999	0.40			0.95		
2000	0.40			0.95		
2001	0.40			0.95		
2002	0.40			0.95		
2003	0.40			0.95		
2004	0.40			0.95		
2005	0.40			0.95		
2006	0.40			0.95		
2007	0.40			0.95		
2008	0.40			0.95		
2009	0.40			0.95		
2010	0.40			0.95		
2011	0.40			0.95		
2012	0.40			0.95		
2013	0.40			0.95		
2014						
2015						
2016						
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Parameters:	Optim cells
Juvenile Survival =	0.400
Adult Survival =	0.950
Initial Total Male Pop/10,000 =	0.037
Initial Female Pop/10,000 =	0.119

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

	Classification Counts						Harvest					
Year	Juvenile/Female Ratio			Total Male/Female Ratio							Segment Harvest Rate (% of	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females
1993		32.52	5.92	31.44	65.04	9.34	34	47	9	90	10.0	4.3
1994		34.42	4.09	33.92	38.41	4.39	47	57	11	115	13.2	5.4
1995		38.76	5.07	35.54	73.21	7.79	39	101	9	149	10.9	10.1
1996		48.26	5.97	40.31	61.19	7.01	40	71	11	122	10.7	7.7
1997		26.00	3.62	44.65	26.40	3.65	50	79	19	148	12.5	8.8
1998		45.03	6.58	45.35	48.34	6.89	47	49	4	100	12.8	6.1
1999		55.26	6.72	47.11	36.32	5.10	49	66	0	115	13.2	8.4
2000		36.41	5.20	50.77	65.22	7.65	58	56	3	117	14.8	7.3
2001		57.58	7.42	50.39	50.91	6.82	44	48	5	97	12.0	6.6
2002		48.85	5.79	53.23	52.53	6.08	63	67	2	132	16.3	9.2
2003		27.88	4.65	54.01	64.85	8.05	59	48	9	116	15.8	6.9
2004		63.59	6.92	51.32	42.40	5.27	69	24	0	93	20.9	3.7
2005		39.79	5.40	48.82	41.36	5.53	63	33	7	103	19.2	4.9
2006		69.89	7.99	45.55	61.83	7.33	90	59	9	158	30.2	9.0
2007		41.98	6.07	43.11	53.09	7.08	77	105	8	190	27.5	16.2
2008		45.33	9.37	42.58	45.33	9.37	57	63	6	126	23.8	11.2
2009		23.53	3.27	42.07	46.32	4.99	58	70	8	136	26.6	13.5
2010		38.32	4.98	38.30	28.97	4.18	34	37	3	74	20.0	8.3
2011		33.53	5.13	38.35	28.24	4.62	23	21	4	48	14.4	5.0
2012		61.82	9.54	38.25	83.64	11.82			14	39	14.7	3.4
2013		61.82	9.54	41.45	83.64	11.82			14	38	13.0	3.3
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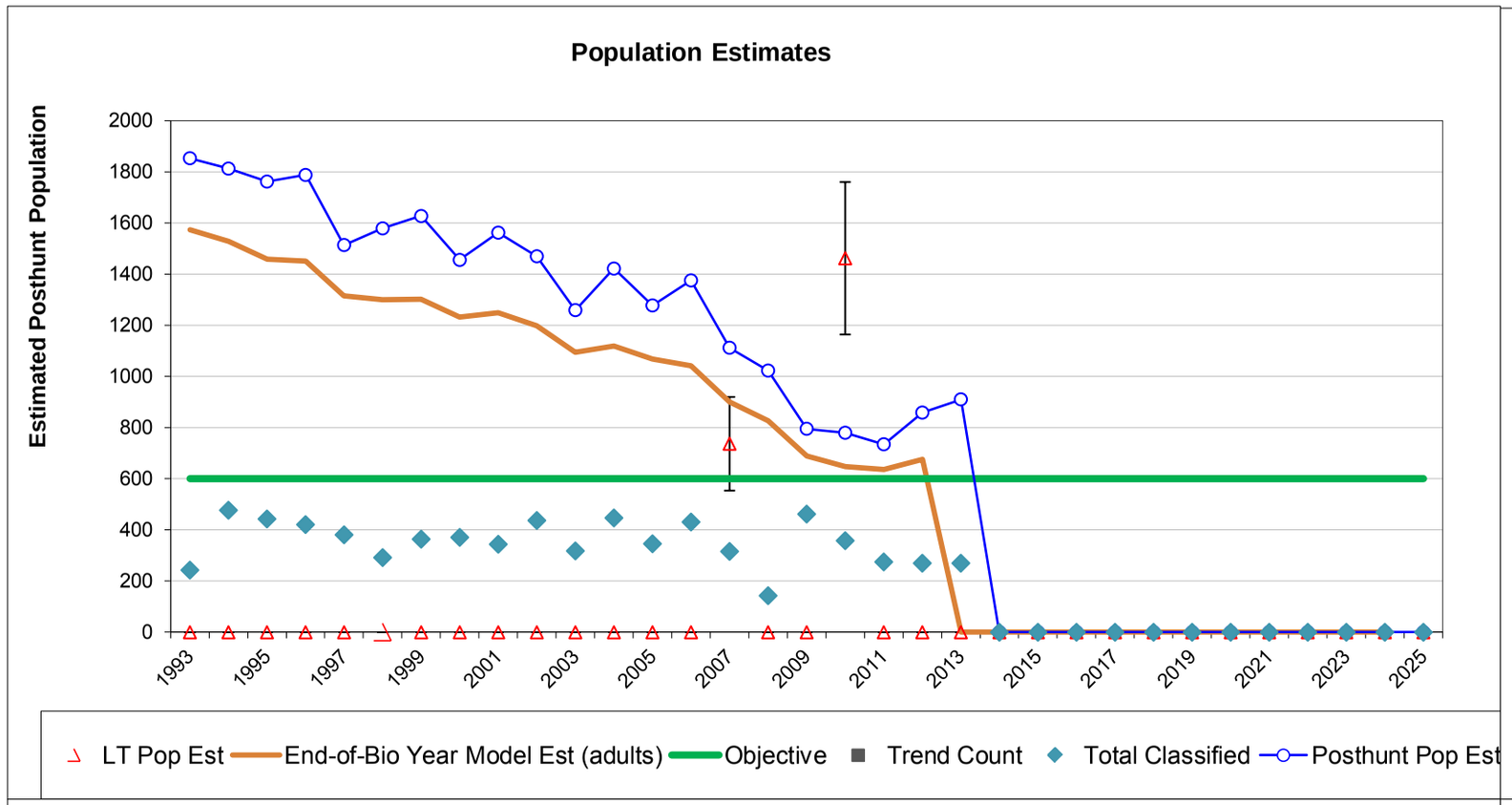
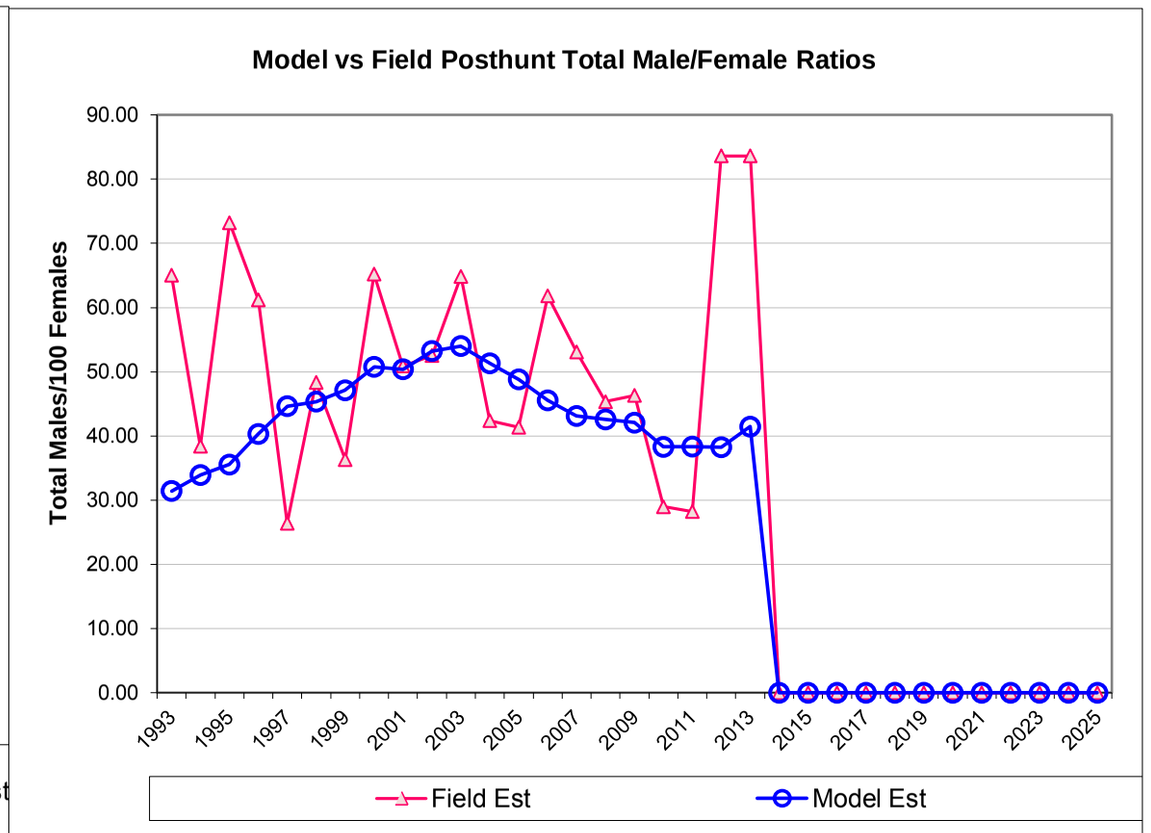
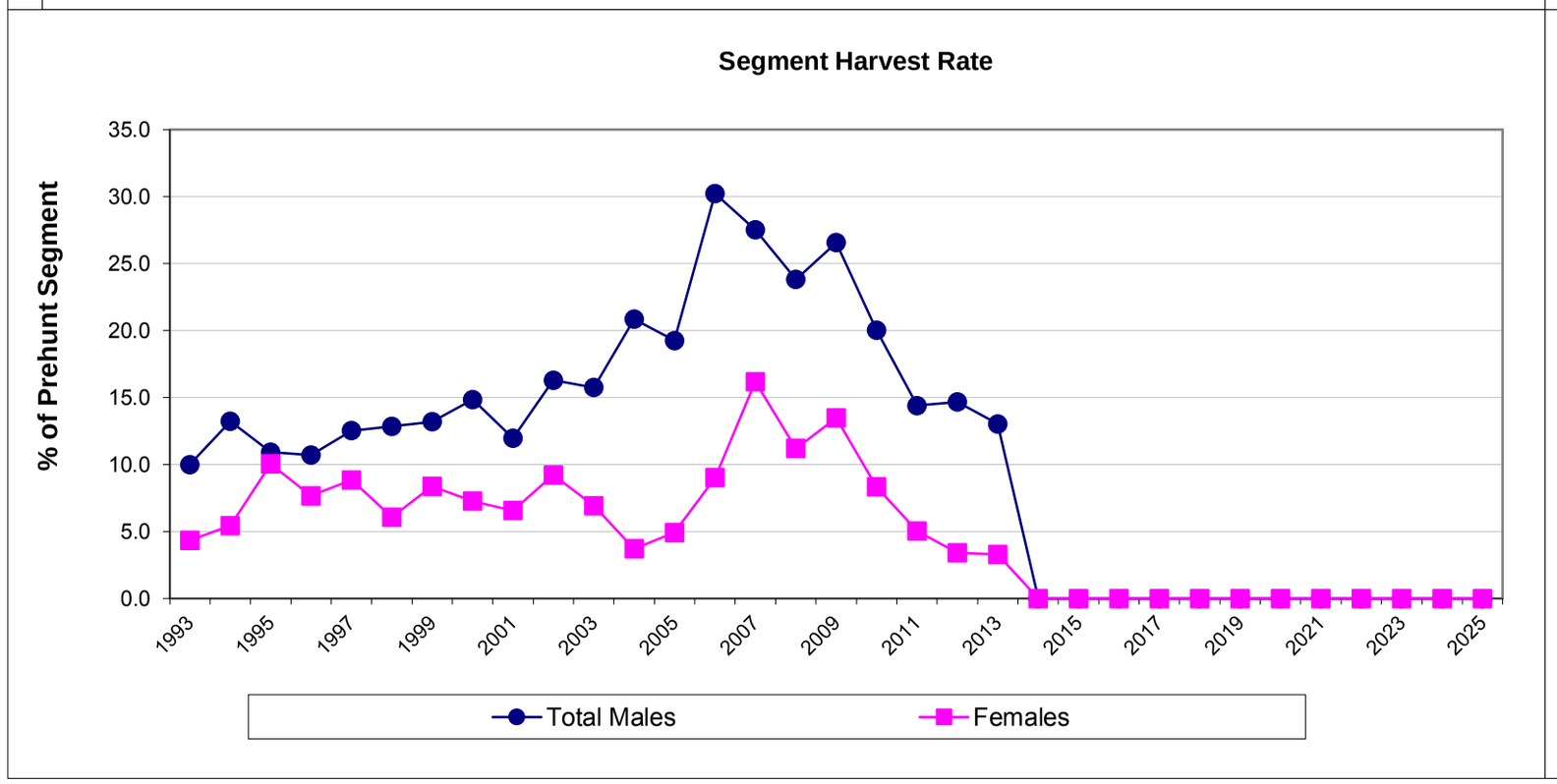
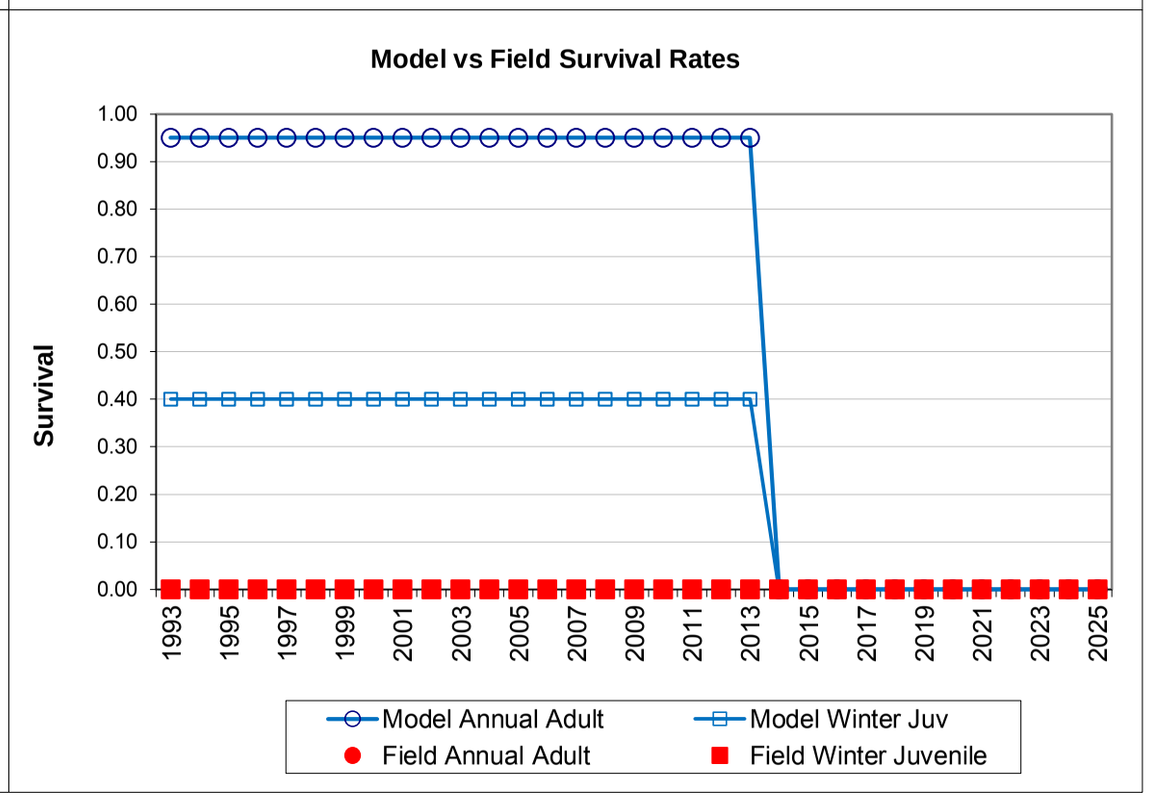
FIGURES









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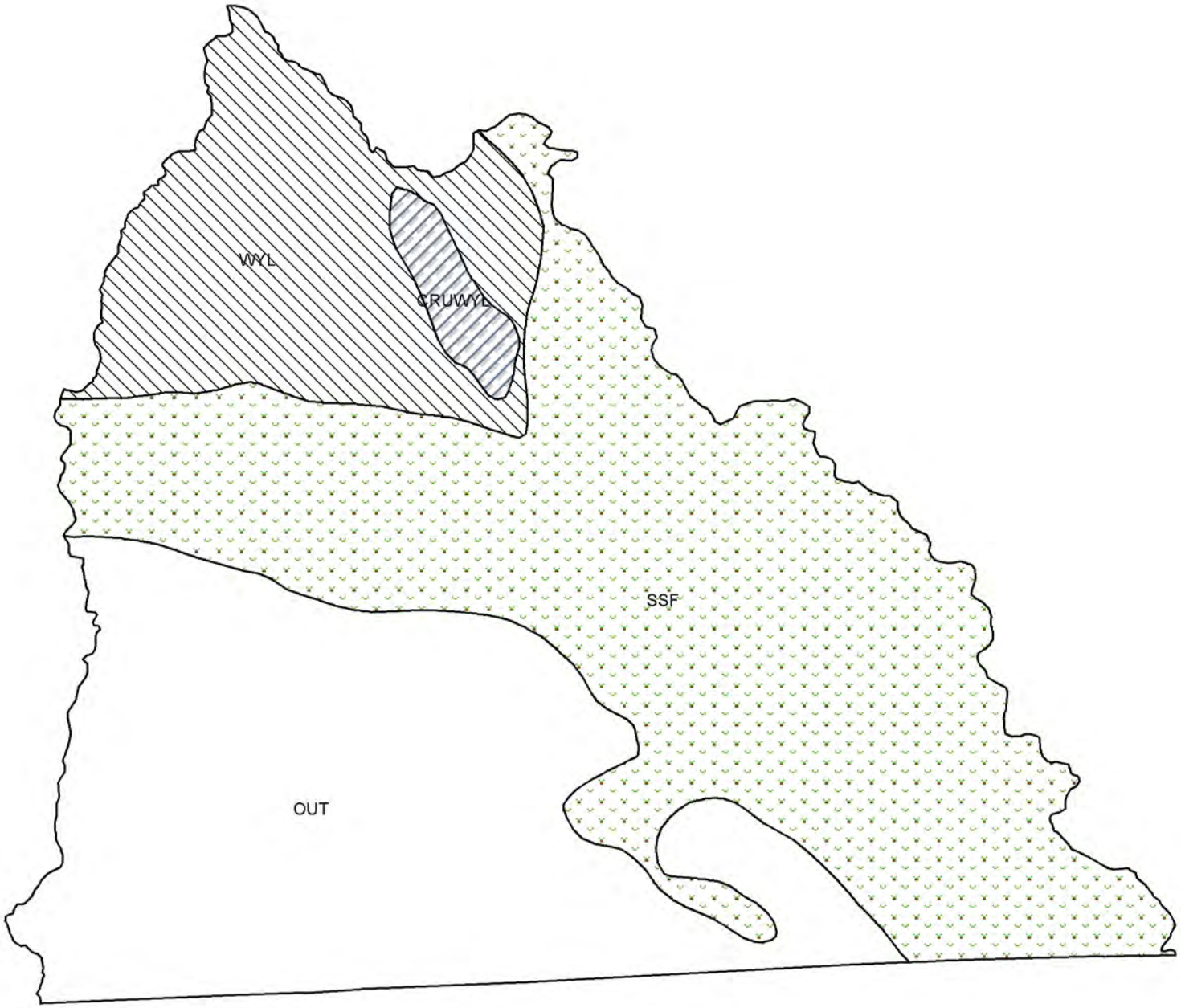

PH529 - Big Creek
HA 51
Revised - 7/87